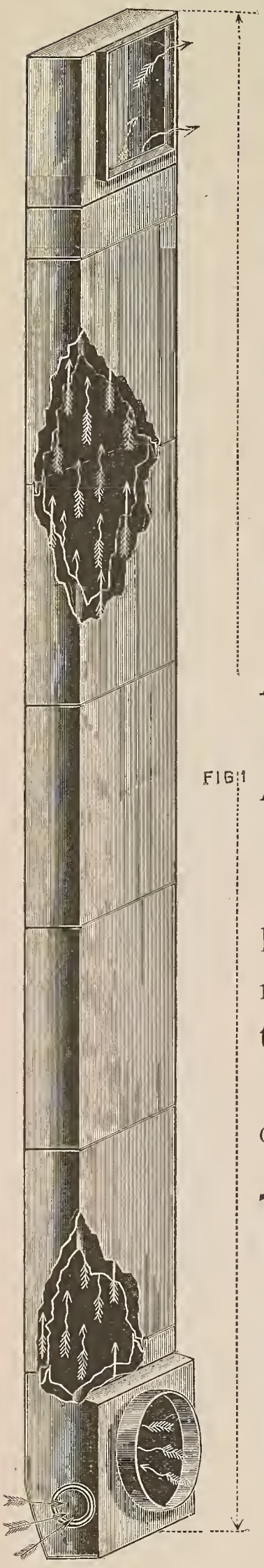
Irving K. Pond, Des.

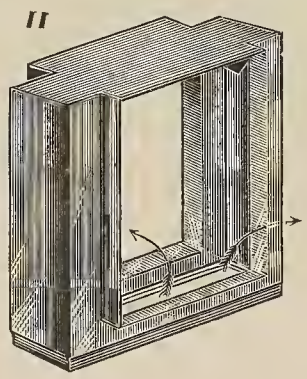
Lorado Taft, Sculpt.

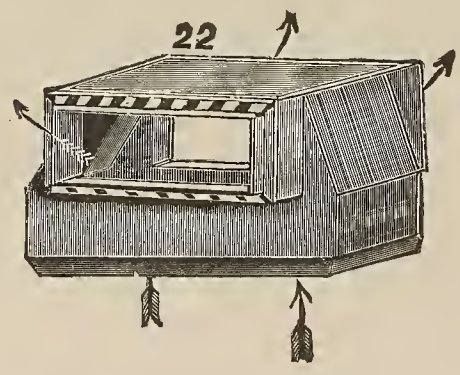
THE INLAND ARCHITECT AND NEWS RECORD

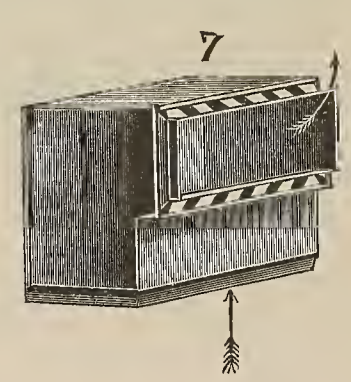
Entered at the Postoffice at Chicago as second-class matter.

CONTENTS.



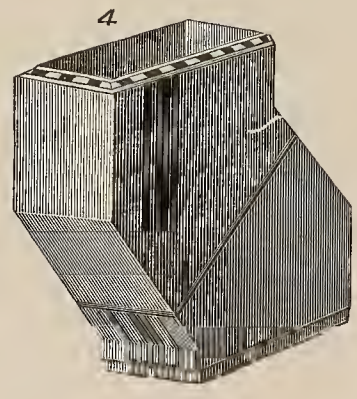






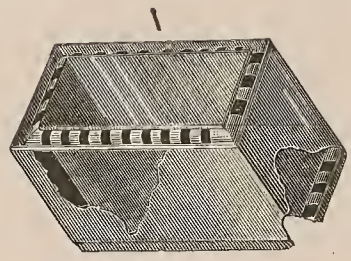
THESE

Perfection Furnace Pipe and Fittings



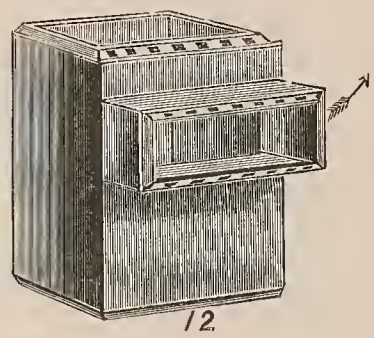
ARE AN ABSOLUTE GUARANTEE AGAINST FIRE

And do away with Iron Lath and Asbestos Paper.



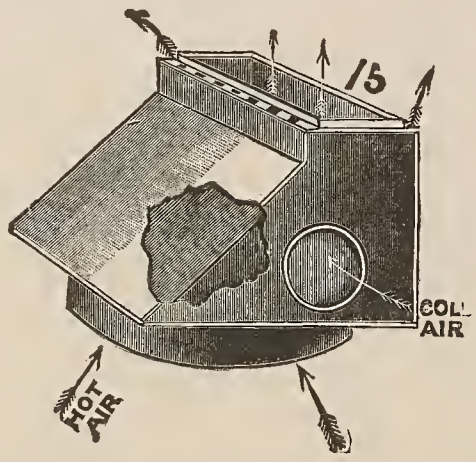
This is the only pipe that is absolutely safe in wood-studded partitions, no matter how close it comes in contact with woodwork.

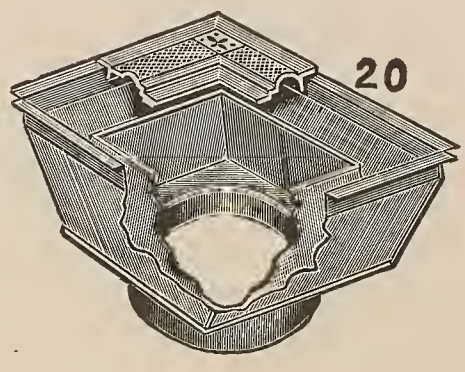
Upon application we will send you descriptive catalogue.



The Perfection Furnace Pipe Co.

TOLEDO, OHIO.





INDEX TO ADVERTISEMENTS.

THE INLAND ARCHITECT AND NEWS RECORD

Vol. XXVIII. AUGUST, 1896. No. 1

A Monthly Journal Devoted to

ARCHITECTURE,

CONSTRUCTION, DECORATION AND FURNISHING

IN THE WEST.

PUBLISHED BY THE INLAND PUBLISHING CO.,

409-410 MANHATTAN BUILDING, CHICAGO, ILL.

L. MULLER, Jr., Manager. ROBERT CRAIK McLEAN, Editor.

SPECIAL CONTRIBUTORS:

DANKMAR ADLER,	D. H. BURNHAM,	W. L. B. JENNEY,
HENRY VAN BRUNT,	P. B. WIGHT,	IRVING K. POND,
LOUIS H. SULLIVAN,	ALLEN B. POND,	J. R. WILLETT.
WILLIAM S. MACHARG.	C. E. ILLSLEY.	

TERMS: Regular number, $5 a year; Photogravure edition, $10 a year. Single copies, Regular number, 50c.; Photogravure edition (including 7 photogravures), $1. Advance payment required.

The columns and illustration pages of THE INLAND ARCHITECT are open to all alike, merit and availability only determining what shall be published. Contributions appropriate to its pages are always desired.

AMERICAN INSTITUTE OF ARCHITECTS.

OFFICERS FOR 1896:

PRESIDENT	GEORGE B. POST, New York, N. Y.
SECRETARY	ALFRED STONE, Providence, R. I.
TREASURER	SAMUEL A. TREAT, Chicago, Ill.

VICE-PRESIDENTS:

FIRST VICE-PRESIDENT .	HENRY VAN BRUNT, Kansas City, Mo.
SECOND VICE-PRESIDENT .	WILLIAM C. SMITH, Nashville, Tenn.

BOARD OF DIRECTORS:

For three years.

Daniel H. Burnham, Chicago, Ill.	Normand S. Patton, Chicago, Ill.
J. W. McLaughlin, Cincinnati, Ohio.	*Robert D. Andrews, Boston, Mass.
*William S. Eames, St. Louis, Mo.	F. Miles Day, Philadelphia, Pa.
Charles F. McKim, New York, N. Y.	H. Langford Warren, Boston, Mass.

For two years.

Louis H. Sullivan, Chicago, Ill.	Charles L. Cummings, Boston, Mass.
George C. Mason, Jr., Philadelphia, Pa.	E. I. Nickerson, Providence, R. I.
Theodore Carl Link, St. Louis, Mo.	W. L. B. Jenney, Chicago, Ill.
Samuel Hannaford, Cincinnati, Ohio.	Wilson Eyre, Philadelphia, Pa.

For one year.

*E. H. Kendall, New York, N. Y.	G. A. Frederick, Baltimore, Md.
Cass Gilbert, St. Paul, Minn.	Warren R. Briggs, Bridgeport, Conn.
C. F. Schweinfurth, Cleveland, Ohio.	Jeremiah O'Rourke, Orange, N. J.
Thomas Hastings, New York, N. Y.	Robert Stead, Washington, D. C.

*These with President, Secretary and Treasurer ex-officio, form Executive Committee.

STANDING COMMITTEES FOR 1896:

Committee on Foreign Correspondence.—W. L. B. Jenney, chairman, Chicago, Ill.; R. S. Peabody, Boston; Henry Van Brunt, Kansas City, Mo.; C. F. McKim, New York; Thomas Hastings, New York.

Committee on Education.—Henry Van Brunt, chairman, Kansas City, Mo.; Professor William R. Ware, New York, N. Y.; Professor N. Clifford Ricker, Urbana, Ill.; A. W. Longfellow, Boston, Mass.; Theophilus P. Chandler, Jr., Philadelphia, Pa.

Committee on Publication and Library.—Frank Miles Day, chairman, Philadelphia, Pa.; W. L. B. Jenney, Chicago, Ill.; Cass Gilbert, St. Paul, Minn.; Theo. C. Link, St. Louis, Mo.; W. R. Briggs, Bridgeport, Conn.

Committee upon Conservation of Public Buildings.—Richard Upjohn, chairman, New York, N. Y.; the Presidents of the several Chapters.

Committee on Building Laws.—T. M. Clark, chairman, Boston, Mass.; N. Le Brun, New York, N. Y.; Alfred Stone, Providence, R. I.

Committee on Congressional Bill for the Erection of United States Government Buildings.—George B. Post, chairman; Bruce Price, New York; John M. Carrère, New York; James G. Hill, Washington, D. C.; Alfred Stone, Providence, R. I. *Alternates.*—E. H. Kendall, New York; H. J. Hardenbergh, New York; Robert Stead, Washington, D. C.; R. S. Peabody, Boston.

Fact Regarding Government Library Designer.

It is time that the controversy regarding the authorship of the design for the National Library should end. It is also surprising that it should ever have commenced, especially through a paper so generally well informed as *Harper's Weekly*. The building was designed by Smithmeyer & Pelz, the actual work being done by Mr. Pelz, both in the original drafting and in the perspective which was made at the time and given out for publication. It is an outrage upon all professional decency for Mr. Casey to for a moment claim any part in the designing of the exterior and plan of this building, though the decorations of the interior may have been designed by him. But decoration is not general design such as is referred to when the architect of a structure is mentioned, and the half-hearted retraction of *Harper's Weekly* should not be allowed to stand and Mr. Casey himself should have before this insisted upon a clear and unequivocal statement of the fact that he had nothing whatever to do with the designing of the building, and that the honor, if it is an honor, belongs to Mr. Pelz, especially as it is thought by many that the younger Casey was educated with the direct intention of placing him in his present position in the place of Mr. Pelz. If this is a fact, it is enough that he has secured the position without seeking to appropriate the laurels of its former occupant.

Tenth Annual Convention of the N. A. B.

The approaching convention of the National Association of Builders, which occurs at Buffalo on September 15, will probably be the most notable in the history of that association since its organization. The rapid growth of the building business ten years ago, with the consequent organization of local exchanges in all the large cities, led to its conception, and the most progressive and intellectual of its members saw that an immense advantage had accrued from this fraternal union of the trades. Latterly, and principally through the downward tendency of building operations and the consequent keen competition, those who had retained their membership in the local exchanges through a feeling of pride rather than because they understood the real benefits of the organization, began to question the value of the national organization and hamper its action by refusing it support. This convention will therefore be largely devoted to a discussion of the past policy and future prospects of the organization, the desirability of local or national organizations among builders, the functions of such bodies and their value to the individual or the trade, as well as the general estimate upon which this judgment should rest. The value of the national organization has never been questioned by those members who have, through education and experience, been capable of judging results that could not be entered upon the page of a ledger, though the ledger was largely instrumental in making the theory a fact in their minds. Those local exchanges that have most closely adhered to the principles of the national body have been the most prosperous, and the individuals who have given their support to its concerted action have also been among the most successful in their business.

THE PROPER UNIT STRESSES FOR TIMBER.*

BY F. E. KIDDER.

ALTHOUGH, for two hundred and fifty years, timber has been the common constructive material for buildings in this country, it has only been within a comparatively few years that any serious steps have been taken toward its economic and scientific use. As near as the writer can ascertain, the size of timbers used in building construction previous to the year 1877, when Mr. R. G. Hatfield published his work on transverse strains, must have been determined almost entirely by guesswork or by former experience.

It is true that Mr. Peter Barlow, in 1817, published in England an "Essay on the Strength of Timber," in which work correct formulas for the strength of beams were first given, as well as the coefficients for the strength of various woods. These data were copied in works on building construction published during the next fifty years, but it is very doubtful if much use was made of them in this country.

Mr. John C. Trautwine was probably the first person in this country to give practical rules and coefficients for the strength of timber, and for many years his "Engineer's Pocket Book" was the standard work, among practical men, on the strength of materials. All of the early experiments made to determine the coefficient, or what is now termed "fiber stress," for the strength of timber beams were made on very small pieces, and as greater intelligence began to be displayed in building construction, a general distrust arose as to the practical value of these results, and since 1880, many tests have been made on full-size timbers, so that we now have a great deal of valuable data relating to the strength of all kinds of framing timber used in this country.

The regulating of building construction by municipal ordinances and state laws, and the increasing tendency of holding the architect responsible for the safety of all construction designed by him, is also doing much toward insuring a more scientific use of building materials.

There is still, however, too much variation in the constants given in various works for the strength of timber, and the custom now prevailing of inserting in building ordinances or laws minimum unit stresses for structural materials makes it especially desirable that a *uniform standard* shall be established which shall fix a limit that will be perfectly safe for timber of a fair quality, and at the same time not require an undue amount of material.

There is, of course, no reason why a given beam will not carry as great a load in one city as in another, and the great variation in the unit stresses for timber given in recent building ordinances certainly does not reflect to the credit of the class of persons who are responsible for them.

The writer believes that the American Institute of Architects, acting through its standing committee on building laws, should recommend a standard for unit stresses of timber that should be used in all building laws. The writer has given this subject much study, and has used his influence to some extent in this direction, but the influence of the Institute would undoubtedly be much greater than that of any individual.

The most thorough work that has yet been done in this direction is that of the committee on "Strength of Bridge and Trestle Timbers," of the Association of Railway Superintendents of Bridges and Buildings, as evidenced in its report presented at the fifth annual convention of the association, held in New Orleans, October 15 and 16, 1895.

This report is a very exhaustive résumé of all published tests that have been made on American timber, as well as the recommended values of authors and structural engineers. The report fills forty-nine closely printed octavo pages, and contains a great mass of valuable information on the subject.

As a result of the investigation of this committee, standard unit stresses were recommended for all varieties of timber used in bridge work at the present day. That these standards will have great weight with engineers, and even, if necessary, with the courts, cannot be questioned. As further evidence of an increasing interest in this direction the report of the Proceedings of the Twenty-Ninth Annual Convention of the American Institute of Architects contains two very valuable papers on the strength of timber, one by Mr. George W. Bullard, of Tacoma, Washington, and the other by Prof. J. B. Johnson, of Washington University, St. Louis.

In deciding on standard unit stresses for building construction several considerations besides that of actual strength, as determined by experimental tests, should be taken into account; the most important of these considerations is that of load. When the load is taken at from two to five times what the real load is ever likely to be, it is evident that a higher unit stress may be allowed than when only the actual load is provided for. Thus, the building laws of Boston, New York and Chicago require that the floor joist in dwellings shall be computed to sustain a load of seventy pounds per square foot of floor, in addition to the weight of the floor construction. This is certainly three times as great as the actual loads, and the writer doubts if a single case can be found where there is, or ever has been, a load of thirty pounds per square foot for the entire floor area of a single room, when used as a dwelling or for lodging purposes. In roofs it is generally customary to figure on loads that are about twice those which actually occur in winter.

On the other hand, some allowance must be made for the unavoidable cutting of timbers, and for a variation of the actual depth and thickness of beams from that assumed. The writer believes that where beams carry constant full loads, as when supporting a brick wall, a lower unit stress should be used than for ordinary floor loads. A lower unit stress should also be used for timber that supports machinery.

For floor beams, where the span in feet exceeds the depth of beams in inches, the writer believes that the safe load should be determined by the formulas for stiffness, and that such provision should be made in the building laws.

The various unit stresses which the writer has finally adopted for the more common framing timbers are given in the following table, which has been compiled so as to show the standards set by the later building laws, and also those recommended by the committee of the Association of Railway Superintendents of Bridges and Buildings, and by Mr. A. L. Johnson, civil engineer, in charge of physical tests of United States Forestry Division. It may be stated that the values given in the tables opposite "Association of Railway Superintendents" are based on a factor of safety of five for tension and compression, and of four for transverse strength and shearing. For bridges, the committee recommends a factor

* COMPARISON OF RECOMMENDED UNIT STRESSES AND THOSE FIXED BY LAW.

A—Safe center load, in lbs. for beam 1 in. square and 1 ft. span.
C, C, F and T—lbs. per square inch of section.

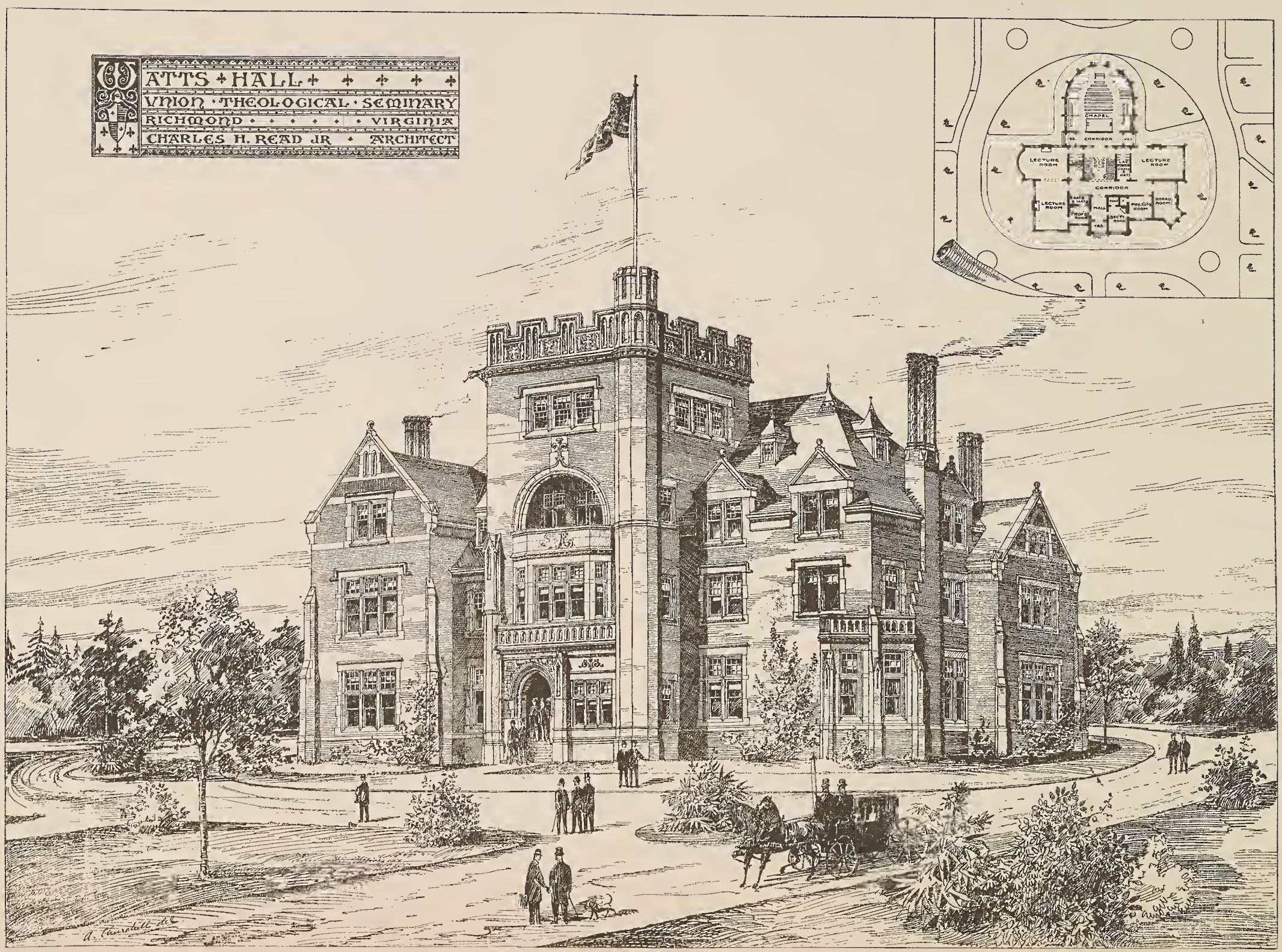
e—Coefficient formula: def. in formula $S = \frac{b\,d\,3\,e}{L^2}$; obtained by dividing modules of elasticity by 12,960.

LONG LEAF YELLOW PINE.

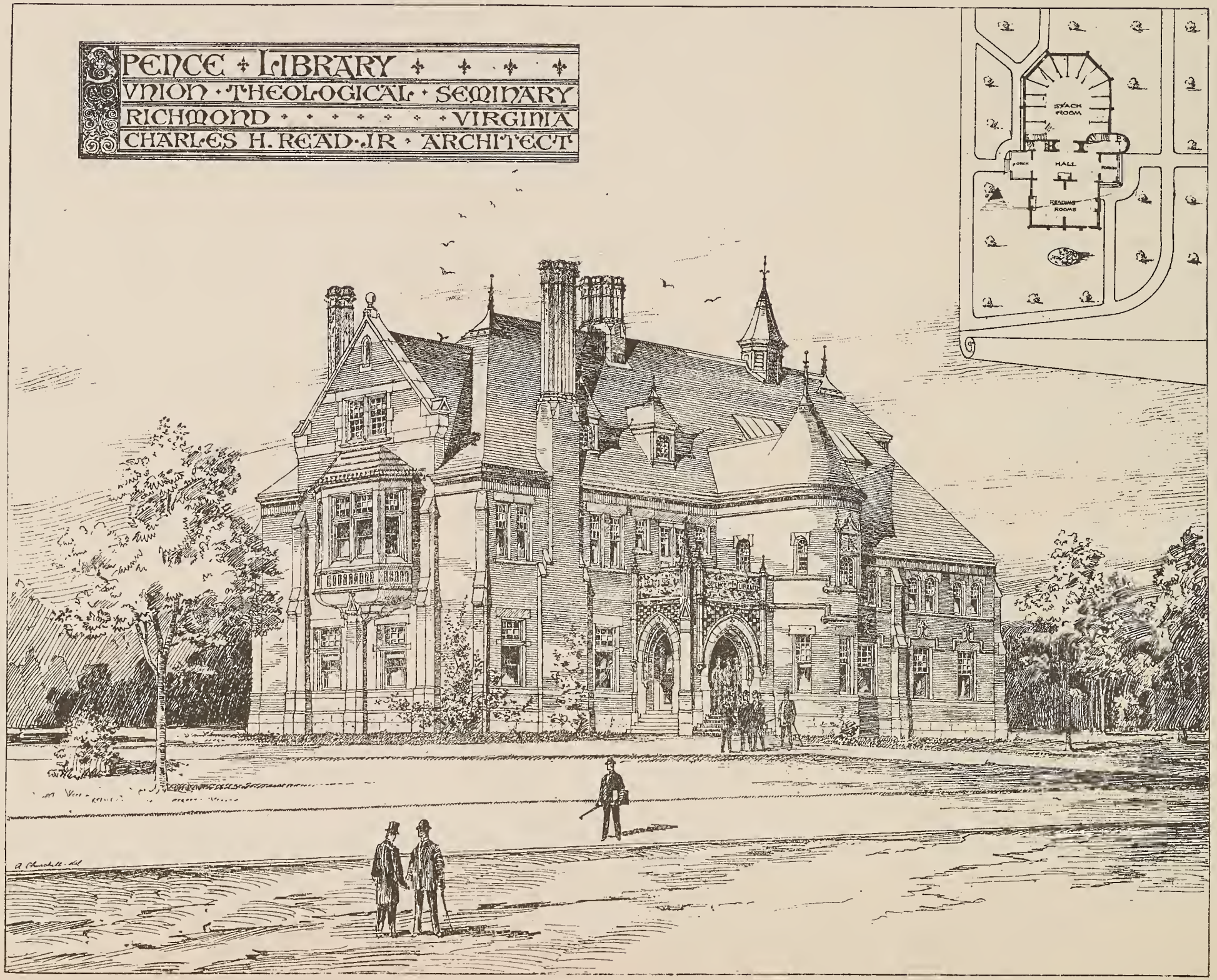
Authority or Ordinance.	Transverse Strength A.	Crushing. With grain. C.	Crushing. Across grain. C.	Shearing parallel with grain. F.	Tension T.	e.
Boston	69	1,000	250	100	.....	100
Buffalo	100	1,000	.....	.....	.....	.....
Chicago	80	900	.....	.....	.....	.....
New York and Brooklyn	137	1,000	.....	.....	.....	.....
Assoc. of R'y Supts*...	97	1,000	350	150	2,400	132
A. L. Johnson*.....	107	1,000	645	125	2,400	111
Kidder.....	100	1,000	500	125	2,000	137
WHITE PINE.						
Boston.....	42	625	150	80	.....	58
Buffalo.....	60	700	.....	.....	.....	.....
Chicago.....	50	600	.....	.....	.....	.....
New York and Brooklyn	112	700	.....	.....	.....	.....
Assoc. of R'y Supts*....	55	700	200	100	1,400	77
A. L. Johnson*.....	61	700	440	75	1,400	67
Kidder.....	60	700	200	80	1,400	82
WHITE OAK.						
Boston.....	55	750	250	150	.....	66
Buffalo.....	75	800	.....	.....	.....	.....
Chicago.....	60	800	.....	.....	.....	.....
New York and Brooklyn	137	.....	.....	.....	.....	.....
Assoc. of R'y Supts*....	83	900	500	200	2,000	85
A. L. Johnson*.....	83	800	1,200	200	2 000	85
Kidder.....	75	800	600	150	2,000	95
SPRUCE.						
Boston.....	42	625	150	80	.....	69
New York and Brooklyn	112	700	.....	.....	.....	.....
Assoc. of R'y Supts*....	55	800	200	100	1,600	92.6
Kidder.....	70	800	250	90	1,600	100
OREGON PINE (DOUGLAS FIR).						
Assoc. of R'y Supts*....	90	1,200	300	150	2,000	108
A. L. Johnson*.....	91	880	500	150	.....	106
John D. Isaacs†.....	.. ..	1,200	400	.....	1,600	98
Kidder.....	90	900	400	150	1,800	110

*These values are 1-5th the ultimate stress for tension and compression, and ¼th for beams and shearing.

†Values used for bridge work on Southern Pacific Railway.


ATTS HALL
VNION THEOLOGICAL SEMINARY
RICHMOND VIRGINIA
CHARLES H. READ JR ARCHITECT
CHAPEL
LECTURE ROOM
LECTURE ROOM
CORRIDOR
LECTURE ROOM
MAPS & HATS
HALL
PRESS'S ROOM
BOARD ROOM
PROF'S ROOM
LIBRARY

PENCE LIBRARY
UNION THEOLOGICAL SEMINARY
RICHMOND VIRGINIA
CHARLES H. READ JR ARCHITECT



DESIGN FOR CHAPEL OF UNIVERSITY OF CHICAGO.

HENRY IVES COBB, ARCHITECT.

KEMEYS LION.

DRAKE FOUNTAIN.

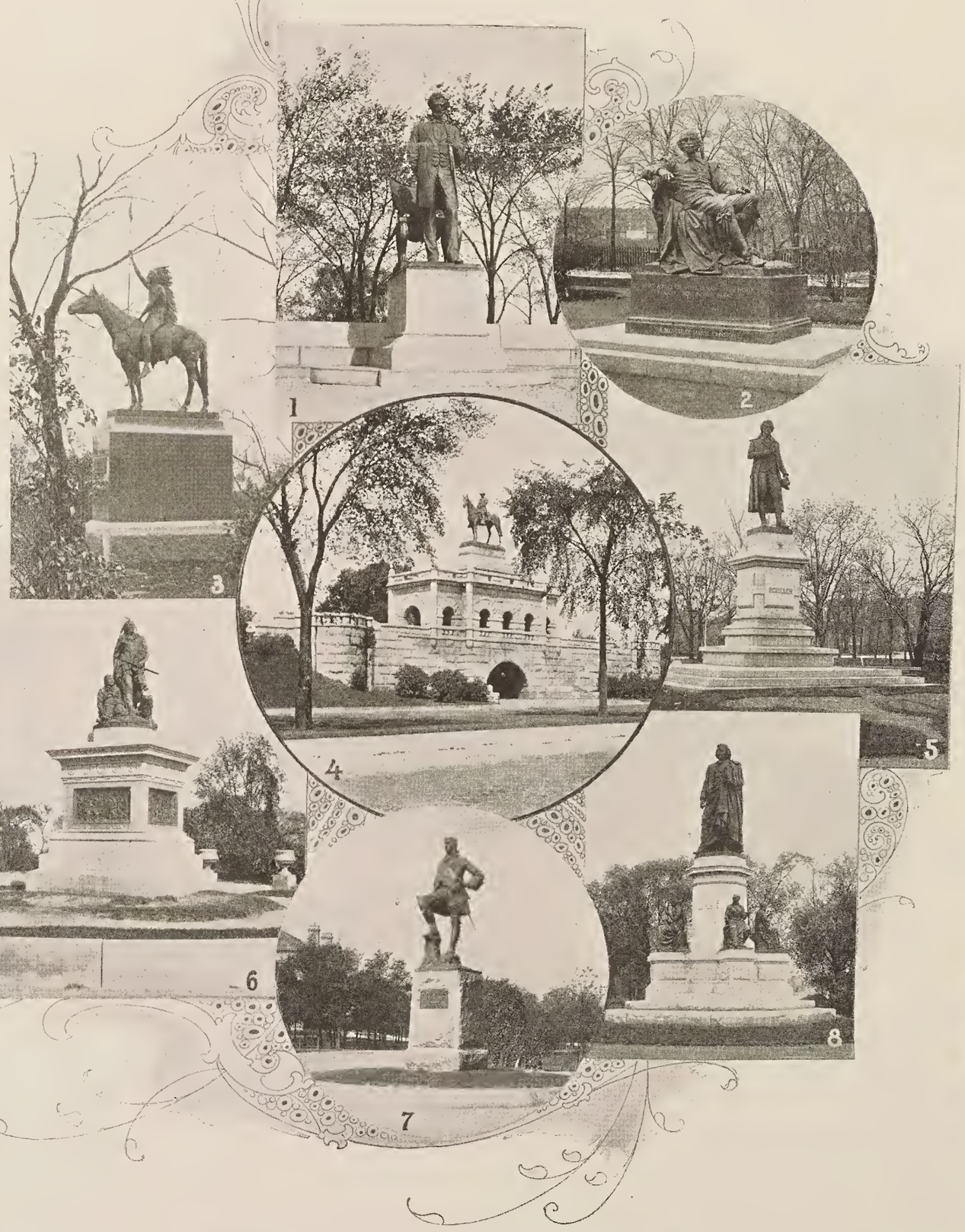
HANS CHRISTIAN ANDERSEN.

FORT DEARBORN MASSACRE.

KEMEYS LION.

VICTORIA GROUP, FROM ALBERT MEMORIAL.

HAYMARKET.



REUTER.

HUMBOLDT.

DREXEL FOUNTAIN.

COLUMBUS.

STEPHEN A. DOUGLAS.

1. Abraham Lincoln. 2. Shakespeare. 3. A Signal of Peace. 4. General Grant.
5. Schiller. 6. Ottawa Indian Group, "The Alarm." 7. De La Salle. 8. Linnæus.

SOME CHICAGO MONUMENTS.

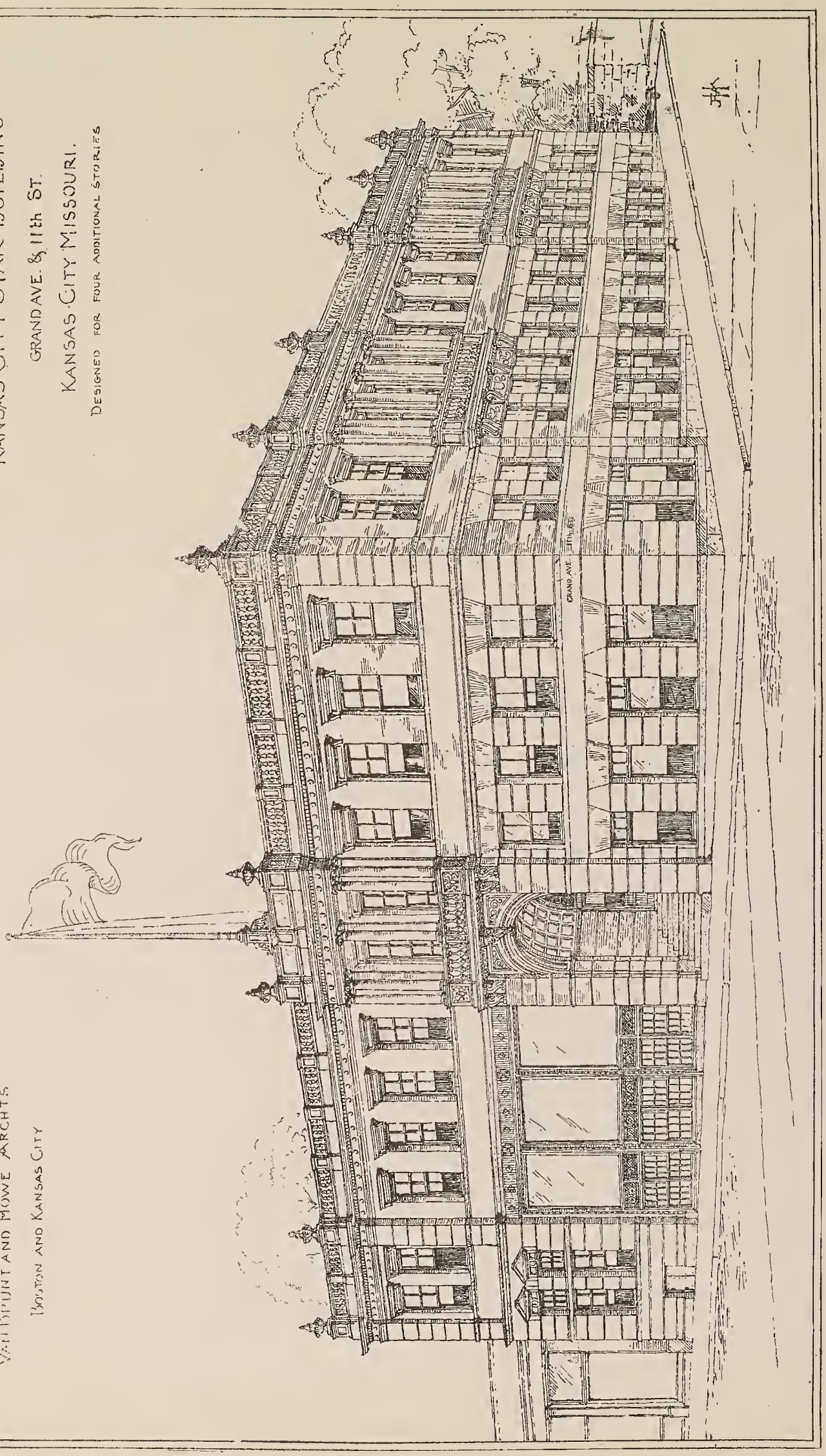
By courtesy of *The Inland Printer*.

KANSAS CITY STAR BUILDING.

GRAND AVE. & 11th ST.

KANSAS CITY MISSOURI.

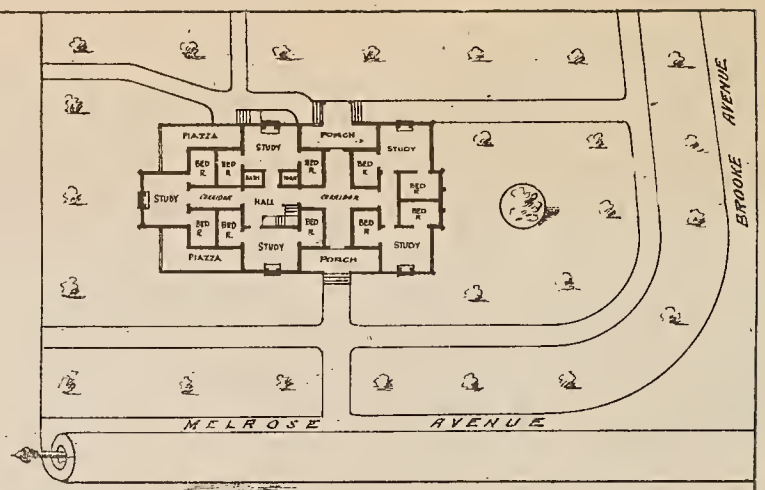
DESIGNED FOR FOUR ADDITIONAL STORIES



VAN BRUNT AND HOWE ARCHTS.

BOSTON AND KANSAS CITY

DORMITORY · BUILDING · · · ·
UNION · THEOLOGICAL · SEMINARY
RICHMOND · · · · VIRGINIA
CHARLES H. READ. JR. · ARCHITECT



BIRDS EYE VIEW OF THE UNION THEOLOGICAL SEMINARY

RICHMOND ··· VA ···

CHARLES H. READ JR. ··· ARCHITECT

KEY PLAN

Detail of Entrance & Administration, Lecture Room & Chapel Building

Detail of Entrance to Library

of ten for tension, five for compression, six for transverse strain, and four for shearing.

Comparing the values as found in the building laws, it will be seen that Boston and New York represent the extremes, the values for transverse strength in the New York law being twice those given in the Boston law. If the Boston law is strictly enforced, which the writer very much doubts, the floor joists in that city must be very heavy indeed. The New York values, although higher than the writer recommends, when taken in connection with the requirements for floor loads, are not far out of the way, as far as they apply to floor beams. For beams supporting walls, etc., they are obviously too high.

Of all the building laws passed up to the present time, the writer believes that the Buffalo ordinance is the most nearly perfect as far as it relates to the strength of materials and to floor loads. It is certainly most nearly in accord with the practice of leading structural engineers.

It should be noticed that the values recommended by the railway superintendents and individuals agree, in general, very closely.

The Boston law is the only one that fixes values for the modulus of elasticity, and even this does not require that beams shall be calculated by the rules for stiffness.

It would seem that, with the data now available, staudard unit stresses might be adopted which would be uniformly recognized throughout the country.

PLASTERING METHODS AND MATERIALS.*

BY THOMAS JONES.

AN eminent writer has well observed that "a knowledge of the elective affinities of bodies simple and compound imparts to its possessor au irresistible power over the unions and disunions of the elements, which he can exercise with certainty in effecting innumerable transformations in the arts." The possession of such knowledge may iuvest with interest and euhance the significance of such an apparently simple matter as the proper compounding of a bed of lime mortar, which operation, when properly understood, may become an interesting object lesson in applied chemistry. In relation to our subject such knowledge enables its possessor to secure uniformly the best results, while ignorance of correct principles is always attended with uucertainty, and frequently with disaster. It is hoped, in the few remarks which follow, to contribute a few crumbs of real information acquired by long experience and not a little study and almost innumerable experiments relating to the subject of plastering materials, with the view of promoting judicious principles in their selection aud correct methods in working. Someone has said that "he who has caused two blades of grass to grow where only one grew before has not lived in vain." Now you will probably agree with me that this is stretching out a truth to the very last degree of tenuity, but still it *is* truth, and in relation to the genuine article, your Institute may very prudently adopt as a motto, "Small coutributions thankfully received."

The subject of "plastering materials," so far as I am aware, has uot hitherto been dealt with by any competent authority, and all sorts of crude notions prevail, both as to the materials and the craftsman who uses them; by many, the one being regarded as little better than a nuisauce and the others as at best only necessary evils. Heretofore the plasterer has been subjected to much abuse and vituperation for defects which were simply inherent in the methods imposed upon him by others, and for which he was certainly uot responsible. Doubtless he has sins and transgressions enough of his own to answer for, without making him accountable for the great "original sin" of ignorance, for which after all he is only remotely responsible. Usually, however, instead of investigating and discussing his "methods and materials" with a view to their betterment, the matter has generally ended in "cussing" *him*. Some have even gone further, and having denounced him, have proposed to "renounce him and all his works," but as in the case of the party originally referred to in this connection, who appears to be still on deck, and getting iu his work as usual, notwithstanding almost endless denouncements and renouncements, so it is highly probable that the plasterer is here to stay, and since he cannot be ended let us hope that at least he may be mended! And as modern social science attaches the utmost importance to the influence of environment on the formation of character let us endeavor to furnish him with better material and instruct him in improved methods, and we may reasonably hope by so doing to make the man a better mechanic, the mechanic a better man.

It is a pretty generally accepted conclusion arrived at by the evolution theory, that all organized forms of living matter are obeying one universal law of progress from lower to higher types of organization. In this conuection would it not be curious and interesting to inquire into, and find out if possible, the original type from which the modern plasterer has been evolved, especially after inspecting some of his work in this city? But how shall we accomplish this, since we can get no information from geology, nor yet from archæology, no petrified plasterers having yet been unearthed with sufficient marks of identity to permit of their correct classification! They have gone, and their works have followed theui, and in many cases (it must be added) have preceded them!

Here, however, as iu many other notable instances, philology throws some light on the subject on which the other sciences are silent. If we examine the etymology of the word "plasterer," we find it is derived from the Greek verb πλασσα, "I *daub* or *smear*"! Now, when we reflect ou this, much may be forgiven him, for it is evident that he has made some real progress during the historic period, and if some of the craft may be still correctly described by the original word, may we not charitably suppose that they have in accordance with a well-known principle in biology, merely reverted to the original type?

Perhaps, also, the original meaning still lurking in the word may assist in explaining some contemptuous allusions to the plasterer and his art, which we meet with in literature, as well as in common parlance. For instance, you remember that Shakespeare makes one of his characters exclaim: "Villain! thy father was a plasterer!" Was there here a sly allusion to the original meaning of the word, or had he had a botched job of work done for him, which prompted the expression? We propound the question, but must leave it for others to answer. Again, colloquially, the word plasterer is frequently preceded by the adjective "dirty"! Is this, too, a survival of the original meaning of the word? Be this as it may, it is pretty evident that the plasterer's lot is anything but an enviable one. He has been delivered into the custody of "Those twin jailers of the human soul, low birth and iron fortuue."

Now in order to improve his conditiou we have proposed to supply him with better material to work with, and here let us now consider the merits, as well as the limitations and defects of lime mortar as a plastering material. And first of all let us inquire what it is compounded of and the best method of making it. And to understand this properly we shall have to take a step further back and ask, what is limestone from which the lime is made and what is it composed of? Answer.— It is known to consist of three distinct elements, namely: Calcium, carbon and oxygen. This is the result of its ultimate analysis, but the mode of existence, or the affinities by which these elements are united together will be more clearly perceived by grouping them. Here it will be necessary to introduce some few simple chemical terms and formulæ, the old notation being best for our purpose. In pure limestone, then, we have one equivalent calcium, one eq. carbon and three eqs. oxygen. They exist together as calcium oxide, the formula of which is Ca O united with carbon dioxide, or C O_2. Now in order to evoke the latent energies that lie dormant in the limestone, we burn it at an elevated temperature for many hours in a limekiln until all the carbon aud 2 eqs. of oxygen are disengaged and pass away as carbou dioxide or carbonic acid. We have then left as a result calcium oxide (Ca O) or quicklime. If we weighed the rock before burning, and then afterward weighed the product we should find that a loss of weight equal to 44 per cent had resulted from the calcination. We have by this process disturbed the balance which existed between the affinities of its elements, we have unlocked their combinations and detached their hidden forces, and we shall compel them to work out our purposes and do our will. The first step in the mortar-making process is to slake the lime perfectly by surrounding every particle of it with an ample supply of water, of which a sufficient quantity must be gradually added to bring the compound to the consistence of cream, when it may be run through the strainer into the mortar box or bed. We shall now add to the fluid mass 2 or 3 per cent of the weight of the lime used, of ground raw gypsum, or failing that, of plaster, made into a very thin paste, and quickly added to the fluid putty and thoroughly stirred up through the mass. The requisite hair or fiber and next the sand may be added, and when these are thoroughly mixed up together the operation is complete.

Here in reviewing the process we must call attention to the fact, that by slaking the lime we have produced another definite chemical compound, namely, lime hydrate, or Ca O, H O, which consists of one eq. lime, or Ca O, and one eq. of water, or H O. Now this one eq. water the lime obstinately retains and refuses to part with, unless subjected to a red heat, and it is this circumstance and the next feature I shall mention, to which your particular attention is invited, as affording an explanation of some phenomena occurring in the hardening of lime mortars, which have seemed to escape sufficient notice hitherto, namely, that lime hydrate, though refusing to part with its water of combination at a lower temperature than that of a red heat, commences immediately on exposure to the air to *exchange* water for C O_2, until after a long exposure it consists of equal eqs. of hydrate and carbonate. Now, why does the process of carbonating stop at this point instead of proceeding until the whole of the hydrate has been carbonated or neutralized by absorption of C O_2? We cannot tell, but the fact to make note of is, that in mortar one eq. of hydrate is not neutralized, and is therefore caustic and left free to attack and unite with the silica presented to it in the form of sand in the mortar compound. But this process of silicating proceeds exceedingly slowly, and is only completed under the most favorable circumstances (namely, the free access of air and moisture), after vast periods of time have elapsed, whereas one eq. of the hydrate is carbonated in a few weeks of tiue. This fact has given rise to the proverb that "lime is a child at 100 years." These are facts which may be easily verified by experi-

*Substance of a paper read before the Illinois Chapter of the American Institute of Architects, at Chicago, June 15, 1896.

ment. Here is one. Take a piece of freshly burned lime and carefully weigh it, then slake in hot water, and next add a weighed quantity of clean-washed sand and form into mortar. Then let it stand for a day or two or longer until it has become a stiff paste; next spread out on, say, a lathed backing, which must also be weighed and noted. The mortar and backing must next be weighed together and recorded. Subsequent daily weighings will reveal the fact that for the first few days the uncombined water rapidly leaves the sample, until only the combined portion remains. After this it will be found that the sample will *increase* in weight until one eq. of hydrate has become carbonated, and then apparently the process ceases and the sample no longer increases in weight. This is a very interesting and convincing illustration of the truth of the foregoing statements.

Now due reflection on these facts must surely lead to the inference that lime-mortar plaster work ought always to be regarded as an uncompleted transaction, for the silicating part of it may be assumed to be incomplete after the lapse of a hundred years. We will now suppose our mortar to be allowed to stand for a week or two in a damp situation, carefully covered up to prevent evaporation, for no water should be added to it when about to be used, the due degree of plasticity being brought about by tempering only.

We have recommended the addition to the mortar of two or three per cent of gypsum or plaster, for the reason that its plasticity and strength are greatly increased by this simple and inexpensive expedient. But another valuable result is brought about by this means, namely, the prevention of expansion of the mortar in assuming the crystallized form, which occurs inevitably where rapid evaporation takes place.

A little experiment will perhaps illustrate this: Slake a large lump of freshly burnt lime with abundance of hot water, and bring to the consistence of thick cream; pour one-half into another vessel, and add the percentage of gypsum or plaster and rapidly mix up thoroughly; then let stand say two days. It will be found on examination that the putty without gypsum has expanded upward in the center and assumed a *convex* form, while the one to which gypsum has been added has, on the contrary, become concave on the surface, the tendency in the one case being to expansion and in the other to contraction, and by balancing these two forces the very best results possible with lime mortar may be attained.

Now, we have supposed, in compounding our mortar, that only the best freshly burnt lime and clear sharp sand have been used; we have not indicated the proportions in which these should be used, for the reason that these would vary in each case with the quality of both the lime and sand. If the lime contain a large proportion of magnesia, for instance, it will take less sand, for magnesia does not swell to the same extent as lime, and possesses far less plasticity than the latter, and in consequence is not well adapted for finish coat; for brown mortar, however, with the small percentage of gypsum added to it, it forms a product second to none for hardness and tenacity. Indeed, lime containing a percentage of magnesia is to be preferred to a lime that contains none, for the reason that magnesia has a much greater affinity than lime has for silica, and is, moreover, a valuable fire-resisting material. But if it contain a large percentage, the plasterer will not want to use it, if he understands his business, unless he is to be allowed a higher price for his work, for six barrels of magnesian lime will produce no more mortar than five barrels of a richer quality, or scarcely as much.

Now, having compounded our mortar of the best materials and made up in the very best manner known, why could we not use it as soon as it was made? and why all this delay? Because, at first it was just lime, sand and water, without temper or plasticity. We allow it to remain in this condition so long in order that the caustic lime and magnesia may attract the silica and produce on the surface of every grain of sand an infinitesimal film of silicate of lime, and also that every particle of lime may become perfectly hydrated, which really happens, and is evidenced by the stickiness and plasticity of the stuff. This result may be, perhaps, partly explained by assuming that the surface of every grain of sand has been slightly roughened by the attack of the lime, and therefore tends to hold and retain its position in the mass instead of slipping out as was its first tendency before the lime had acted on it.

Now we will suppose that, having obeyed the foregoing instructions, our mortar is in prime condition; we will now leave it with the plasterer to lay on evenly and regularly over the surfaces of the walls and ceilings to which it is to be applied, and here a little ethical question comes in. Dr. Samuel Johnson, the lexicographer, was once requested to define what wickedness was. He replied: "Wickedness? Why, it is taking the short cut to anything!" On reflection, it will be perceived that this definition covers a good deal of ground, but with all deference to the doctor and his definition, we shall have to make an exception to the rule in the case of our plasterer, and instead of it being his wickedness it shall be his supreme virtue to proceed by direct route from any one point to another in his wall or ceiling surfaces! Let there be no uncertainty, no circumlocution, but let him take "the *short* cut" and follow "*the straight line.*"

Now, if he has obeyed our instructions and the work was done in cool weather, and at least one month was allowed for each coat of plaster to dry and harden, before the next was laid on, we may reasonably expect a good sample of work as a result. We are here supposing that the mortar was laid on wood lath and finished in two or three coats and the laths and lathing were of the best, as also the plastic material and workmanship. But after all our care and painstaking, are we not mortified and utterly disappointed to find that, on visiting and inspecting the work some months later, we find cracks and warpings and loosenings where we thought it next to impossible they should occur? What has produced these defects? Let us try to discover the cause, and, having made our diagnosis, prescribe the remedy.

Now, it was necessary it describing the chemical elements of our lime compounds, to use some forms of abbreviated chemical notation, as for example, C O_2 for carbonic acid. We shall now introduce another element which we shall have to make use of from this onward, in liberal quantity. It may be expressed by the formula C S, or, in ordinary language, common sense. Here we had the mortar made by the best method possible, and we will assume it was laid on the work perfectly straight and even, and still it cracked. Then, is it not self-evident that the trouble arose from the lath and woodwork on which it was laid?

Let us examine a lath and stud partition: First, How is timber affected by moisture? Answer.—It swells. Second, How is it affected by heat and drought? Answer.—It shrinks. Third, In which direction does the greatest amount of shrinkage occur? Answer.—Transversely of the length. Now, suppose we take a few laths from out the pile indiscriminately, and carefully measure and make note of their respective dimensions, and then spread them out and keep them in a dry place for, say, six months or a year. We then remeasure them. What is the result? Are the dimensions the same? They are not. Shrunk? Yes. Has the shrinkage been uniform? It has not. Some of the laths have shrunk more, some less? Is that the fact? It is. Next, Is there any other change that takes place in timber when wet on one side and dry on the other? There is. What is it? Warping. Now, suppose we take a stud partition and lath it, each lath being fastened with four lath nails. When a coat of wet plaster is applied on the face of the laths on one side only, what will happen? They will warp. Will not the four lath nails hold them fast and prevent them doing so? They will not. Now, taking the lathing and studding together, is it not self-evident that the entire woodwork shrinks in the course of a few *months*, and the plaster becoming rigid in a few *days* at the farthest, is compelled to slide off or become detached from the face of the lath? It is inevitable, even if the shrinkage does not exceed the fiftieth part of an inch.

Have you never observed that plastering over the surface of a beam, where the laths are simply nailed to it and plastered over, invariably "buckles" and is forced off? You surely have observed the occurrence repeatedly.

We then arrive at the conclusion that lime mortar on woodwork is always productive of uncertain results even under the most favorable circumstances, and, furthermore, requires a long time for proper execution.

If we add to what has been already advanced the constant and inevitable danger from fire which this form of structure involves, will it be denied that a severe indictment has been clearly established against lath-and-plaster work? If this be admitted, what is the remedy? Is there any form of construction; is there any material by which these defects and difficulties may be overcome and these dangers prevented? In answer to these questions you are invited to consider the possibilities of wire fabric in connection with cement or plaster concrete as a complete and final solution of all possible difficulties in connection with this subject. Gentlemen, you are accustomed to specify wire cloth, so called, on which to form plasterwork, and you are familiar with some of its advantages, you are, therefore, aware that plaster on wire, properly executed, *does not crack.* But it is heavy and expensive, as well as difficult of execution, and requires three coats of plaster instead of two for its completion, and also requires the first coat.

If after all our painstaking in compounding and applying the mortar, and the necessary time allowed for the performance of the work, only imperfect results are obtained, what shall be said of work where the materials are thrown together anyhow, and as soon as made thrown on the work and then *baked* dry in a few hours at a temperature almost sufficient to bake bread? What, indeed, can be said of such work, but that it deserves to be execrated, and its perpetrators *executed!* Such treatment indeed would be quite suitable if the plaster were composed of clay instead of lime mortar.

* * * * * *

Cannot gypsum then be safely used as a plastering material? Certainly it can if it be first burnt at a red heat and *hardening* matter added to it which has also been subjected to the same process. It then forms the hardest and most imperishable plaster known. Keene's cement, for example, to be "gauged" with plaster to stiffen the wire sufficiently to permit of the successful application of the second coat.

* * * * * *

Now let us suppose that in order to prevent this passing through and consequent waste of mortar, we had a backing behind the wire "cloth" against which the plaster could be applied, and suppose also that instead of using the common form of wire cloth (which is very loosely put together and easily displaced), we adopt for our purpose "galvanized" hexagonal netting where every strand of wire is twisted and interlaced with its neighbor, and, therefore, calculated to transmit any strain to the entire fabric. Suppose, also, that instead of the usual wooden stud we use a narrow web of strong wire fabric or other suitable metallic support, embedded in and completely enveloped by the concrete, and also that at a distance of every two feet vertically,

we interpose a division of the same material; it will be perceived that on completion we have a wall structure composed of hollow cells formed of incombustible and imperishable material, which will not fall off in the event of the hottest fire, and which is so interlaced and connected together by continuous metallic support, both vertically and horizontally, that it is practically a monolith, a structure in one piece in which both the tensile strength of the wire and the tensile and compressive strength of the cement are utilized to the last degree, and which is equally strong in every direction, and is, moreover, as light as a lath and plaster partition. The whole scheme is rendered practicable by the use of collapsible cores against which the plaster is laid, and which are removed as the work proceeds.

* * * * * *

Cellular concrete is bounded in each direction by simple divisions of *same material*, and is in one piece, and requires only a finish coat of plaster to complete it, while a block or tile wall requires two coats, and has at least double the weight.

* * * * * *

It will be seen that as compared with ordinary plaster work on wire cloth, this form is vastly superior, for the reason that by the use of movable backing the strongest form of open wire fabric can be used for the purpose, the size of the mesh being a matter of indifference. Wire is the strongest form of metal. "Hex" netting is the strongest form of wire for our purpose.

* * * * * *

Let us now suppose a building constructed of steel framework, with the spaces filled in with cellular concrete on wire fabric, so locked and bolted and pinned together, and so anchored to its foundation, so buttressed and bridged in every direction, the latent energies of the materials so utilized and directed, that the whole structure may be regarded as a monolith of incombustible material, and practicably indestructible. When its lightness and strength, its practicability and cheapness, as well as the imperishable and incombustible character of its materials are considered, may we not confidently affirm that here are possibilities which are deserving your most serious attention and study which when fully comprehended and utilized may involve new departures both in building economics and architectural forms and decoration.

STYLE IN RESIDENTIAL ARCHITECTURE.

BY C. E. JENKINS.

THERE can be no question but what Chicago abounds in fine residences. A stroll through any of the fashionable portions of the city reveals this to the dullest observer, and to one keen to appreciate, quick to take in the good and allow the bad to remain as much as possible out of sight — or at least not to cause annoyance — the pleasure to be derived is in proportion to his appreciation of architectural excellence. There is absolutely no sentiment to move one in any particular direction of thought — no old landmarks, made famous by association of past events — in fact, no historic conditions. One can take a calm, unbiased, unprejudiced view of each of the numerous residential structures, and as the difference in age is so comparatively trifling in most cases (of course there are some exceptions), the whole condition of criticism resolves itself into the treatment of *style*. The city is decidedly new and the newest architectural thought is represented. The latest (if one may be allowed to use the term), "Architectural Fads" are here exploited with all the freedom that could be desired. One finds examples of that much to be regretted "neo-grec" style which Mr. Richard Morris Hunt followed so closely for at least ten or a dozen years, and which his Marshall Field residence is a fair example of how closely he always "worked in styles," as also is the Borden residence on Lake avenue a glowing example of Mr. Louis Henry Sullivan's early observance of this same neo-grec.

The transition from this style to the many and various others which have come before us in the past twenty years is well represented in Chicago residential architecture, and wherever *style* was strictly lived up to, there is to be found the better condition. As a rule, the person building a residence of any considerable pretension has put himself well in the hands of his architect, and with the architect alone must rest the result.

There is every reason why Chicago should abound in fine residences. It has one of the greatest advantages in an abundance of room upon which to build. So unlike eastern cities where space is difficult to obtain and where great rows of residences are erected with hardly difference enough to tell one from the other, were it not for the numbers they bear. In Chicago, the architect can add somewhat of landscape effect about the structure, and by having room to spread the building over more space lessen the height and give that chance so much to be desired, namely, the roof effect. The showing of four sides of a building adds greatly to the architectural possibilities, and, in fact, taking all the conditions as they exist, there is no reason why residential architecture should not attain the highest standard, provided the architect would be content to use the good and accepted and not try the creation of *style*. Mr. Schuyler tells us that "The sympathy of all who love architecture as a fine art should be given to every attempt to design on sound general principles," and further adds, "when we can recall so much more easily than we can originate, the designer must needs lean upon the past." Professor Hamline, in his article entitled "The Battle of the Styles," says "Invention out of whole cloth is disastrous to good design." "The most horrible compositions that disfigure our streets, the most *outré*, barbarous and illogical hotchpotches of mistaken designs to be found in our cities, are quite as apt to be the work of intelligent men of fair general education, who are nevertheless possessed of the idea that absolute originality is the chiefest of architectural virtues to be attained only by absolutely disregarding all historical precedent."

That there are recognized styles in architecture which should be considered, recognized conditions which have come to us from generations back, which exist as emphatically as the laws which govern science, no reasonable person questions for a moment. That *style* is the outcome of the genius and study of great minds, the result of the best thought and intellect of periods when certain standards were lived up to and made lasting by a purity born of concentrated effort in one direction, should be a sufficient reason certainly for young architects to lay aside that "most sure-to-be-a-failure" condition of striving for "absolute originality." Few, indeed, are they who create anything new in style, and yet how many aspire to do so. Every architect should have a distinctive mannerism, a subtle something in his treatment of style which will make his work apparent and distinguished from other architects. This it is that marks him as greater or smaller than his fellows. The structure has to be created. It must be adapted to its needs and the space it will occupy. It must be made to fill its purposes, and the difference between servile imitation and executive originality must be the true standard of its artistic worth.

The late H. H. Richardson has often been mentioned as creative of style. Certainly his use and adaptation of the Romanesque may well warrant the term "Richardsonian," and with what charming results this style has been treated by him, the J. J. Glessner residence on Prairie avenue, and the Franklin MacVeagh residence on the Lake Shore Drive, testify. The many, many failures to adapt this style in residential architecture only go to illustrate his greatness.

However much one may be pleased with these two examples, it does not lessen in any degree the charm to be found in productions where style was adapted from simpler and other well-known and accepted conditions. Certainly the James W. Ellsworth residence on Michigan avenue near Eighteenth street is none the less interesting, for the reason that the late Mr. Charles B. Atwood, who designed it, adapted the style of a Colonial condition most common in Annapolis, Maryland, and other cities of that part of our country. This most charming bit of Colonial architecture, nestling, as it does, under the shadow of the more pretentious stone mansion adjoining it, is in such charming contrast to its neighbors that one must be indeed dull who could pass it and not stop to admire the simplicity, refinement of detail and good common sense which pervade every part of it. The brickwork laid as it is in the old-fashioned manner, the delicate white painted window frames and sashes, the carved cornice under the pitched roof, the dignified and simple entrance, with the quaint brick walk leading to it, the picture gallery in the rear with separate entrance, and the tall iron fence which marks the street line, all go to make up a most charming example of the style of Colonial days. The whole place has a strong suggestion of quaint old blue and white China and rare store of art within. There has been no attempt to introduce new and original features, or to IMPROVE on the style adopted, no effort to outdo the beauties of this simpler condition. That Mr. Atwood created this residence, adapted it to the space allotted, and the requirements of his client, and yet made no attempt to create an individual style, redounds to his credit, and I venture to say there are few, indeed, who would not by some over-ambitious effort have marred the charming effect now produced.

Let us go further south on Michigan avenue and we find the residence of Mr. George W. Cass — Henry Ives Cobb, architect. Certainly no structure could be in stronger contrast to the Ellsworth residence than this most exquisite creation of the style of the French architecture of the sixteenth century. From the ground line to the ends of the ornamental iron or copper work which caps the steep roof there is no deviation in style. Simple, pure, sweet! The distribution of the ornament is so tastefully treated that the first glance hardly suffices to grasp its extent, and it is only upon more careful study that the amount of thoughtful work expended to produce this gem grows upon one.

The Dr. John A. McGill residence, on Drexel boulevard, is by the same architect and in the same style. In this structure, which is considerably larger than the Cass residence, the ornamentation is more massed. The balustrade leading to the entrance porch and surrounding it is highly ornamented, as is the entrance itself, but beyond this there is little or no ornamentation. The whole effect is most dignified and beautiful. Both these charming residences illustrate to a high degree how much can be accomplished by closely following style. The slightest intrusion, the least attempt at the creative, would ruin the charming effect now produced and throw these two exquisite examples of the "Français Premier" period into the rank and file of the many failures in that direction. In a recent publication, partly devoted to the works of Mr. Cobb, is the following: "It will have been perceived that, much more than the other architects of Chicago whose works we have been considering, Mr. Cobb 'works in styles.'"

On the Lake Shore Drive, just before reaching Lincoln Park, are three residences decidedly dissimilar in styles but all the creation of the same mind. I refer to the George Armour, the Mrs. Babara Armour and the Gen. A. C. McClurg houses. The first of these follows a style quite Venetian in feeling, as suggested by the vertical panels of checkered brick and the open loggia under the roof, and although nineteenth century conditions have had

some modifying effect, still the architect has stuck closely to the style and the result is most pleasing. The second has a strong, early English feeling, a style hard to name even if it has one, but at the same time a condition so common in residential architecture throughout England that it has individuality and character, and in its picturesqueness and simplicity may well be followed. Certainly, many of the works of Earnest George and Peto or Mr. Norman Shaw have a similar feeling, although this residence is simpler in treatment, there being little or no sculptural decoration. The third, the Gen. A. C. McClurg residence, is in the French Gothic style, and, like the other two, the style is followed close enough to produce a most charming result. In these three residences marked attention has been given to the color effect of each as bearing on the other, and the artistic result is heightened by the contrast. Mr. Francis Meredith Whitehouse is the architect of the three structures, and it is much to be regretted that he has given up the practice of his profession.

The S. Lenoard Boyce residence on Grand boulevard, St. James Parish House on Cass street, the Hugh J. McBurney residence on Prairie avenue all attest to what can be done by closely following the good and simple in style. The H. N. Higinbotham residence on Michigan avenue, of a decidedly "Richardsonian" feeling, is perhaps the most ambitious of any of the fine residential architecture which Mr. Whitehouse has given Chicago, and ranks, if not first, certainly among the finest residences in the city. It is much to be admired ; still I think I find more enjoyment in some of the others mentioned, although they all read as of the same lesson.

At Bellevue Place and Lake Shore Drive is the William Borden residence, designed by the late Richard M. Hunt, and next to it on the west is the residence of Mr. Bryan Lathrop — McKim, Mead & White, architects. They are in the extreme of difference as far as style is concerned; the first having all the delicate feeling of the "Français Premier" period, and the other representing the double swelled front semi-Colonial residence so familiar to Beacon street, Boston. One cannot fail to stop and examine these two opposite conditions, and, it is to be hoped, admire both, though so different in feeling. In either instance they stick truthfully to the style adopted, and in both is the result most satisfactory.

It would be quite impossible to review all the pleasant examples of residential architecture which one finds in Chicago. The few mentioned serve to illustrate how the observance of style or following of style produces conditions much to be desired, and as one views the many costly residences which beautify the avenues and drives of Chicago, how conclusive must the feeling be that the over-ambitious striving to create style is the cause of so much failure, and that where intelligent use of accepted conditions predominates is to be found the lasting beauty spots.

PRELIMINARY N. A. B. CONVENTION NOTICE.

To all Members of the Filial Bodies of the National Association of Builders:

It is apparent that at the coming tenth annual convention, to be held at Buffalo, New York, beginning September 15, a very considerable portion of the time should be devoted to a discussion of the question: Are organizations of builders, either local or national, desirable? If so, what are the functions of such bodies, and should the value of organization be measured by, or dependent upon, immediate specific results only?

The experience of the association up to the present time demonstrates the fact that as yet builders throughout the country have largely failed to comprehend either the character, latent possibilities, functions, or results of organization.

Such local exchanges as have in any degree applied the true principles of organization which it has been the constant effort of the National Association to define, have to that extent demonstrated the wisdom of organization, and, through the operation of such principles, have come to understand in a measure the benefits growing out of concerted endeavor; but in so far as exchanges have failed to apply these principles, they have demonstrated failure to appreciate the results which must inevitably follow their application to the conduct of business affairs.

Correspondence with the national secretary is indicative of the fact that builders have so little knowledge of the benefits of organization that the subject fails to excite their interest unless some pressing need or emergency confronts them. Questions are daily asked, the answers to which were printed by the National Association five years ago, and placed in the hands of all its members individually, as well as in the hands of builders generally throughout the country.

VALUE OF ORGANIZATION.

In the minds of the majority of builders throughout the country the value of organization is limited, apparently, to combination for the purpose of resisting attack by forces too strong to be controlled by the individual. In operation, builders have largely limited its work to affairs of the moment, and for the enforcement of conclusions in the main obstructive rather than constructive. The power in organization for the correction of evils which daily menace builders, and for defining the principles upon which their business should be conducted, thereby anticipating and obviating the difficulties which are now left for settlement till the friction point has been reached, is practically lost sight of.

The truth of the axiom, "Prevention is better than cure," is accepted the world over, and builders should recognize that in organization lies their only hope for the comprehensive and efficient application of this principle. This power, which is applicable to every condition under which the building business is transacted, lies fallow at the present time, because of failure on the part of those most interested to understand the greater importance of preventing evil conditions rather than curing them after they had gained foothold. There is no condition to which the building business is subject which is not capable of beneficial treatment by united action on the part of builders; organization presents the means for united action, and out of the solidity thus obtained beneficial results must inevitably follow.

The main purpose of the National Association of Builders is the education of the individuals of which its constituency is composed to a knowledge of the protective power that lies in organization ; and it seems important, under the circumstances, that the coming convention should be devoted in a large measure to a thorough discussion of the primal question, "Is there any necessity for associated effort among and by builders?" A discussion of the various characteristics of organization will naturally follow, comprehending its application to affairs between contractors, between contractors and their workmen, between contractors and owners, between contractors and architects, and to all the relations contingent upon the transaction of the building business.

PREVENTING LABOR TROUBLES.

Taking the relation between employers and their workmen, for example, we should be able to show through our discussions that by and through organization builders may be enabled to prevent the occurrence of labor disturbances of all kinds, thus avoiding the disastrous results which follow enforced settlement when both sides are unfit for dispassionate judgment, owing to the antagonisms resulting from open warfare. The steady extension of organization on the part of the workmen implies a duty on the part of employers to combine in order that they may not be subjected individually to attack from united bodies of employes. It must be conceded that, however improper the action of workmen's organizations at times may be, the object of the average trade union is the betterment of the conditions by which the workmen are surrounded ; and it is often because of the failure by the employers to fulfill their share of the duty involved in the relationship that the workmen arrive at unjust and one-sided conclusions ; but so long as employers fail to present their side, and do their share toward establishing permanently harmonious relations, so long will the conclusions of the workmen continue to be one-sided. Notwithstanding the frequency with which strikes continue to occur, there is manifest desire on the part of the workmen to avoid open breach, and in order to obtain the ends they have failed to secure through strikes they are seeking control through legislation. Employers in their present disorganized state are incapable of influencing legislation, and are virtually at the mercy of the persistent, unremitting efforts on the part of the workmen. This one function of organization, the value of which is beyond computation, is the means whereby employers and workmen in every branch of the building trades can reach amicable agreement, under the existence of which strikes or lockouts or other complications arising out of the relationship will be impossible. What may be done through discussion of this one relation may also be done in all the other relations indicated, and therefore the most important matter at the approaching convention will be to make plain the manner in which organization may be applied to prevent the perpetuation of all those conditions whose damaging effects are so injurious to the welfare of the whole fraternity, and as a natural sequence that organization is imperatively necessary.

Every association of builders in the United States, whether affiliated with the National Association or not, is urged to consider the work of the association and the value of familiarizing themselves with the methods prepared, whereby business can be made safer, and therefore more profitable; also the obligation of every such organization to do its share in the effort to better conditions which at present dominate the transaction of the building business in all its branches.

The convention presents unequaled facilities for giving to the builders of the country the fullest and most complete information in regard to the character, use and benefit of organization, and all associations of builders are requested to consider the advisability of attending the Buffalo meeting, either as affiliated exchanges or as visitors.

Further information will be issued by the national secretary in due time, and correspondence is solicited from all builders interested in the welfare of the fraternity.

By order of the Executive Committee.

William H. Sayward, *Secretary*.

An uneducated man, having inherited a fortune unexpectedly, wished to live up to it, and at once decided to have a large house built. Accordingly he consulted an architect, instructing him to erect "a mansion like Mr. Bung's over there, only a good deal better." The architect proceeded to question him as to the various details, and presently asked him what kind of an aspect he would like.

"Aspect?" repeated the man, not knowing what was meant; "aspect? Has Mr. Bung got an aspect?"

"Of course he has," said the architect, smiling.

"Then I'll tell you what; if, as you say, he has one, just put me in a couple of aspects."—*Tit Bits.*

CHICAGO'S LATEST STEEL FRAME BUILDING.

THE Trude building, Chicago, of which Jenney & Mundie are the architects, is located on the southwest corner of Wabash avenue and Randolph street; 104 feet on Wabash avenue from Randolph street south to the alley; 50 feet on Randolph street. The next 25 feet west on Randolph street belongs to the Trude family, but it is leased for two or three years. At the expiration of these leases it will be built up as a part of the corner building.

There are twelve stories with a total height of 154 feet. Steel skeleton fireproof construction, very substantial and very secure, is used; the building being calculated for commercial purposes with a stock of goods on each floor. The two lower stories are intended for stores and have high ceilings and large store windows. The upper stories will be divided to suit tenants.

There are three passenger elevators in the central entrance way from Wabash avenue and a freight elevator on the alley, and the building will be supplied with all the conveniences the tenants may desire.

The two street elevations are very handsome, and largely of ornamental terra cotta of a light soft warm gray color. The style is French Renaissance. The main entrance is particularly handsome and is flanked on either side with polished granite pilasters with ornamental caps. The entrance way to the elevators and staircase is entirely of marble.

This building will add another to the already large number of handsome fireproof buildings for which Chicago has become famous even in New York, where it is acknowledged that not only the steel skeleton construction but every important improvement in these fine buildings originated in Chicago.

The pressed brick for the entire building was furnished by the Jenkins & Reynolds Company, whose display room and office is at 405 Chamber of Commerce building, Chicago. The brick are what are known as No. 212. They are of a warm golden buff color, distinctly different from anything else, an effect that is produced by careful manufacturing at the plant of the Cayuga Pressed Brick Company, Cayuga, Indiana. They are brick made from shale that is mined a great depth in the earth to insure freedom from discoloring salts that are often found in brick manufactured from surface clay. The building is looked upon with great satisfaction and pride, as the style of architecture is peculiarly adapted to this brick.

The courts are walled up with the white enamel brick of the Tiffany Pressed Brick Company, 1151 Marquette building, Chicago, producing a strong soft light in the offices facing thereon. These brick are imperviable to climatic changes, holding their polished surface intact. Their use for fronts has not reached a full degree of appreciation as yet, though they are now being used on several important buildings, making a strong, clean, artistic facing.

The terra cotta ornamentation, furnished by the Northwestern Terra Cotta Company, Chicago, on the two streets, creates a delightfully pleasing effect by its soft warm gray color and rich carved detailings.

The Pioneer Fireproofing Company, of Chicago, supplied 1,300 to 1,400 tons of fireproofing—to complete the floor arches, partitions and columns. The floors are of their latest patterns of end pressure flat arches, the lightest they have yet made, but tested for great weight, being the hard-burned fire-clay tile from their own clay beds at Ottawa. In case of fire, the worst that can happen to this hollow tile is the chipping off of the first face exposed to the fire.

The latest improvements in making a building fireproof are used in the Trude, and the most thoroughly distinctive feature of the wiring in this building is that a sufficient space for electric mains, risers, feeders and cut-out centers is afforded upon the various floors. This building is provided with a separate accessive shaft extending from the bottom to the top of building, with commodious cabinets on each floor adjoining this shaft for meters and cut-outs. From these cabinets on the various floors brass armored conduits of an approved type extend through the tile partitions, or are imbedded in plaster, to outlets for the connection of fixtures or switches in the different offices.

The general method of construction throughout the building is as follows: Heavy main risers extend in the main shaft from the basement to the top floor of the building, being divided into two sections by two heavy centers of drawn copper feeder, mounted upon slate bases and provided with fuse blocks containing fusible strips, at which point the riser may be cut into two parts in case of trouble. These cut-outs or centers are located upon the third and ninth floors. From each of these centers heavy feeders extend to the basement in main shaft, and from the foot of this shaft directly to a switch board on which is placed two heavy polished copper slate base switches—making it possible to cut off the electric current from the entire building instantaneously. This practically covers the heavy conductors in the building, which are of such size and so arranged that either a two or three wire system of distributing current may be used.

Returning to the distributing system, at each floor short submains extend from the main riser in the shaft to tap line cut-outs in the adjoining cut-out and meter cabinet. Here a separate cut-out and meter are placed for each office or suite of offices, it being possible with very small expenditure of labor to place a single meter so as to indicate the entire consumption for any combination of offices which the pleasure of the tenants may dictate. From these cut-outs the tap line wires pass through the conduit directly to the fixture outlet.

Each branch conductor is inserted in a separate conduit, continuous from cut-out to outlet, and so installed that any conductor may be readily withdrawn and another inserted in its place at any time without injury to plastering or decorations.

The entire electrical insulation is installed by Rittenbury & Jones, 333 The Rookery building. Many new features will be added to the building in the near future, such as electric air compressors, elevators and exhaust fans.

The contract for the wire for the electric light plant throughout the entire building was awarded to the Washburn & Moen Manufacturing Company—western office and warehouse, 107 Lake street, Chicago—who furnished their high-grade white core rubber wire, known as "Crown" brand.

The extreme and sudden ranges of temperature characteristic of the climate of the northern portion of the United States has directed the attention of a host of its most eminent engineers and skilled artisans to the perfecting of heating systems and appliances; and in the last decade, an era without a counterpart in the remarkable strides made in every branch of engineering, no industry has had a more phenomenal growth or brought so much ingenuity and skill to bear in the development and perfecting of its product.

So diligently have inventors worked on every detail of steam and hot-water heating apparatus, aided by the progress made in other departments of engineering, that today they can furnish a plant so perfect that as a method of warming buildings no possible objection can be raised. It is no longer necessary for the manufacturer or heating engineer, in order to secure sales, to dwell upon or extol the comfort, health, convenience, economy and other advantages resulting to users of steam and hot-water heating systems—the thousands of systems in operation testify so positively to their merits. The legitimate demand increases daily.

The most important part of a heating apparatus is naturally centered in the heat distributors or radiators, and in no direction has greater advancement been made, and the heating system placed in the Trude building represents the highest and best development in radiator construction.

The fact that American radiators are used in a constantly increasing majority of the modern palatial office and public buildings, and the better class of residences in this country, inviting the most critical attention of the best heating engineers to every feature of their construction, is the highest possible indorsement of the excellence and superiority of these goods, and splendidly testifies to the eloquent results afforded by them.

It is simply necessary to say that the Trude, Fisher, Atwood, Unity, Champlain, Security, Hartford, Pontiac, Boyce, Ogden, Plaza, Lakota, Great Northern, Chicago Stock Exchange, Masonic Temple, W. C. T. U. Temple, Chamber of Commerce, Columbus Memorial, Manhattan, Occidental, Chicago Athletic, Chicago Title and Trust, Field Columbian Museum, Lakeside Club, Armour Institute, Marquette, Monadnock, Schiller, Venetian, Y. M. C. A., Y. W. C. A., Herald, the Fair, Ellsworth, Wellington, Metropole, Old Colony, Ashland, Owings, Isabella, Lees, New York Life, Leiter, Victoria, Virginia, Lexington, Chicago Beach, Windermere, Auditorium Annex, Chicago University Buildings, Marshall Field Building, Steinway Hall, Fort Dearborn, Studebaker, Roanoke (alias Major), Art Institute, World's Fair Buildings, Newberry Library, New Era, and many others, are all heated with the popular product of the American Radiator Company, which voices the consensus of architectural opinion as to the scientific construction and perfect workmanship of "American Radiators," and their adaptability to every form of modern construction.

WHEN a building contract stipulates that the architect's certificate shall be conclusive evidence of the builder's right to a final judgment, and the certificate is produced, and not impeached, there is no reason to deny foreclosure of the lien. Smith *vs.* Smith, City Court of New York, 25 N. Y. Supp., 513.

NEW PUBLICATIONS.

THE STUDENTS' STANDARD.— The "Students' Standard Dictionary," now in preparation by Funk & Wagnalls Company, will contain upward of 50,000 words, and from 800 to 900 pages. The volume, which will be issued under the supervision of Prof. F. A. March, has been edited by the Rev. James C. Fernald, editor of the department of Synonyms, Antonyms and Prepositions of the Funk & Wagnalls Standard Dictionary, assisted by a staff of skilled workers formerly engaged on the same undertaking. The "Students' Standard" will preserve the distinguishing excellences of the Standard Dictionary. Among others these comprise the clear definite statement, respelling with the Scientific Alphabet to indicate exactly the pronunciation of every vocabulary word, and precise etymologies. The latter are in charge of Prof. F. A. March, Jr. The chief feature, one not before attempted in any school dictionary, is the incorporation in the "Students' Standard" of the meanings of every word used in the sixty volumes of English Classics, selected by the Commission of Colleges for study preparatory to admission to the chief colleges of the United States. The type is clean cut and clear, the paper will be of superior quality, and the binding attractive and durable.

THE AVERY ARCHITECTURAL LIBRARY. Catalogue of the Avery Architectural Library. A Memorial Library for Architecture, Archæology and Decorative Art—Library of Columbia College. New York: 1895.

The most considerable collection of architectural books in America and one of the largest, if not actually the largest in the world, is now gathered together in Columbia College in New York, and known as the Avery Architectural Library. This superb collection of books owes its existence to the generosity of Mr. and Mrs. Samuel P. Avery, who established it as a memorial to their son, Henry Ogden Avery, who died in 1890 at the age of thirty-eight. Though his lifework as an architect had scarce more than begun, young Mr. Avery had already made a name for himself in his zeal for his art, his ability as an architect, his interest in architectural and archæological affairs, and his skill as a writer on art topics. No more fitting memorial than this great collection of books illustrative of the art he loved best could have been devised; certainly no other American architect has had reared to him a more splendid or more enduring monument, and it does not in the least detract from its splendid nature that it has a utilitarian and educating value that must increase with each succeeding year. Prior to the founding of this library there was no more pressing need in American architecture than a vast general library. Not a collection of a few costly books, nor a larger number of less expensive ones; nor a collection which would illustrate the architectural taste of a single school or period: but a large library, planned with a generous scope as regards subject, gathering together in one place the representative literature of all architecture and the arts which relate to it; not a universal collection, perhaps, but as near that as may be, with the most costly books—many of which are far beyond the resources of the average architect—and the lesser ones needed in such a collection. This is the plan on which the Avery Library has been made. Its formation was intrusted to a commission composed of the librarian of the college, Mr. George H. Baker; the professor of architecture of the college, Mr. William Robert Ware, and Mr. Russell Sturgis. Two members are regularly required to be these respective officers; the third is to be an architect not connected with the college. The sum of $30,000 was provided in the original deed of gift by Mr. and Mrs. Avery, $15,000 of which was applied to the immediate purchase of books, and $15,000 invested as a permanent endowment. This last amount was subsequently increased to $25,000, while the original resources of the library have been largely added to by Mr. Avery, both in money and in books, many costly gifts having been made long after the original endowments were paid in. The library was founded in 1890, and in the five years that have elapsed since that time a magnificent collection of books has been gathered together, comprising, at the time the catalogue was printed, about 13,000 volumes. Though it is an architectural library the most generous construction has been put upon these words; wisely almost every art, save painting and engraving—and even these are incidentally illustrated—are abundantly represented by most costly publications. Archæology, costume, heraldry, genealogy, local history, bibliography, arms and armor, metal work, industrial art, tapestry, furniture, ceramics, glass, biography and sculpture are given due place in this admirable collection. Its list of architectural and archæological periodicals is altogether unique so far as this country is concerned, and is probably surpassed by few libraries abroad, including as it does complete sets of the publications of upward of two hundred societies and other journals. Here the library is quite alone, and the important public value it has in this respect is one of its most notable features. As yet no especial attempt has been made to provide books on engineering or on strictly technical subjects as drawing, such topics being fairly well represented in the college library, and being somewhat beyond the scope of the Avery collection, which is intended to illustrate more particularly the history of architecture, to provide the student with every available material for the study and solution of every possible question, and to give the architect the noblest examples of his art, and that full, that almost complete illustration which, owing to the cost of architectural books, he can seldom have in his own office. It is not possible, within the limits of a brief review, to give a detailed account of the artistic resources of this library, nor even to speak of its most splendid possessions, the mere reading of whose titles would be a pleasure to those who know the books even by name alone. It is sufficient to remark that the selection has been made with admirable catholicity of choice. The architectural literature of every country is represented, for to the architect the building art speaks a universal language not limited by the tongue of the writer. It does not pretend to be a complete library—that is perhaps unattainable in any event; nor has it been proposed to duplicate volumes already in the general library of the college, and which the student may find close at hand. Hence a number of well known books are not included in the catalogue, but which must not on that account be deemed incomplete. And amid the very great resources of the library it would be unkind to find fault because some one or two particular books are not at present contained within it. The printed catalogue is an authors' catalogue, and has been published in sumptuous form by Mr. Avery, who has generously borne the entire expense. It is a splendid volume of 1,139 pages, finely printed, with broad clear type, agreeable paper and beautiful mechanical execution; in itself no inconsiderable memorial of the young man whose name it bears. It includes not only all the books in the library at the time the book was printed, but a catalogue of the more important articles and papers contributed to the more notable periodicals. This portion of the work appears to have been admirably performed. In following the printed title-pages a few discrepancies have arisen. In cataloguing the series of Chuquy on the cathedrals of France, the separate entries have been made of the special title-pages which accompanied each part descriptive of a particular cathedral. As a matter of fact these were published under the collective title of "Cathédrales Françaises," and are generally known by that name, though apparently no title-page with that legend was printed. Murray's "Handbook to the Cathedrals of England" is entered in a detailed manner under King, their author, without any indication of their better title, though there is a cross reference under Murray to the entry under King. The "Monographie de l'Église Notre Dame de Noyon" is entered in full under Ramée, while there is only a cross reference under Vitet. In this the catalogue follows the British Museum Catalogue; yet as a matter of fact M. Vitet was the author of the book, and M. Ramée only drew the plans, sections, elevations and details. Moreover, no reference is made to the fact that this book forms part of the "Collection de Documents Inédits sur l'Histoire de France," published by the French government, though other books in this series include this statement. So, also, certain volumes in French in the "Bibliothèque de l'Enseignement des Beaux-arts" are entered under that title, while other volumes in English, forming part of the "fine arts library," are entered under that head, without a cross reference to the other series, as there should have been, and the cross reference under the editor, Comte, contains no mention of the English translations. Individual contributors to collective works are generally entered under the separate names of authors by cross references, though several notable omissions have been made. M. Hoffbauer's great book, "Paris à Travers les Âges," is entered under this name only, and no entries occur under the names of the contributors. No references, also, are made to the many notable contributors to M. Havard's "La France, Artistique et Monumentale," which consists of a series of separate monographs on important French buildings. Engravers, where their share of the work in the book has been considerable, are generally referred to in the alphabetical list, but there are some exceptions. The "Gates of the Baptistry of St. John in Florence," engraved by Ferdinand Gregory and Thomas Patch, are entered under Ghiberti only, and not under the names of the engravers. Abbe Tarbé's "Reims: Easais Historiques sur ses rues et ses Monuments" is referred to only under the author, without mention under the engraver, N. Maquart. Singularly enough, Bishop Milner (page 670) is referred to only as "Rev. Bishop," while his proper ecclesiastical title is that of "Right Rev." These errors or omissions, however, are of insignificant extent, and of slight importance compared with the very thorough manner in which the catalogue has been prepared, and which reflects infinite credit upon all concerned in its production. As a bibliography and a work of reference this book must long remain the standard publication of its class, and we may be sure that foreigners as well as our own citizens will look with envy upon New York in the possession of this great collection, while the architects of this country must always be under a debt of lasting gratitude to Mr. and Mrs. Avery for their generosity in establishing and endowing it for their benefit.

LEGAL DECISIONS.

RIGHT TO MECHANIC'S LIENS ON COUNTY BUILDINGS.

Sections 638e and 638f, Civil Code, do not prevent or take away from the laborer or material man his right to a mechanic's lien upon a public building. Board of Commissioners of Jewell county *vs.* Snodgrass and Young Manufacturing Company, Supreme Court of Kansas, 34 Pac. Rep. 741.

EFFECT OF ADVERTISEMENTS FOR CONTRACTS.

Contracts may originate in advertisements addressed to the general public. The intent manifested by an advertisement for bids must govern in its interpretation. Where the advertisement is nothing more than a suggestion to induce offers of a contract by others, it imposes of itself no liability. An advertisement for bids for the erection of a public school building declared that the board reserved the right to reject any or all bids. It was a rule of the board, however, that all contracts should be let "to the lowest and best bidder." A contractor submitted a bid, which was the

RESIDENCE OF F. S. GARDNER, CHICAGO.

GEO. W. MAHER, ARCHITECT.

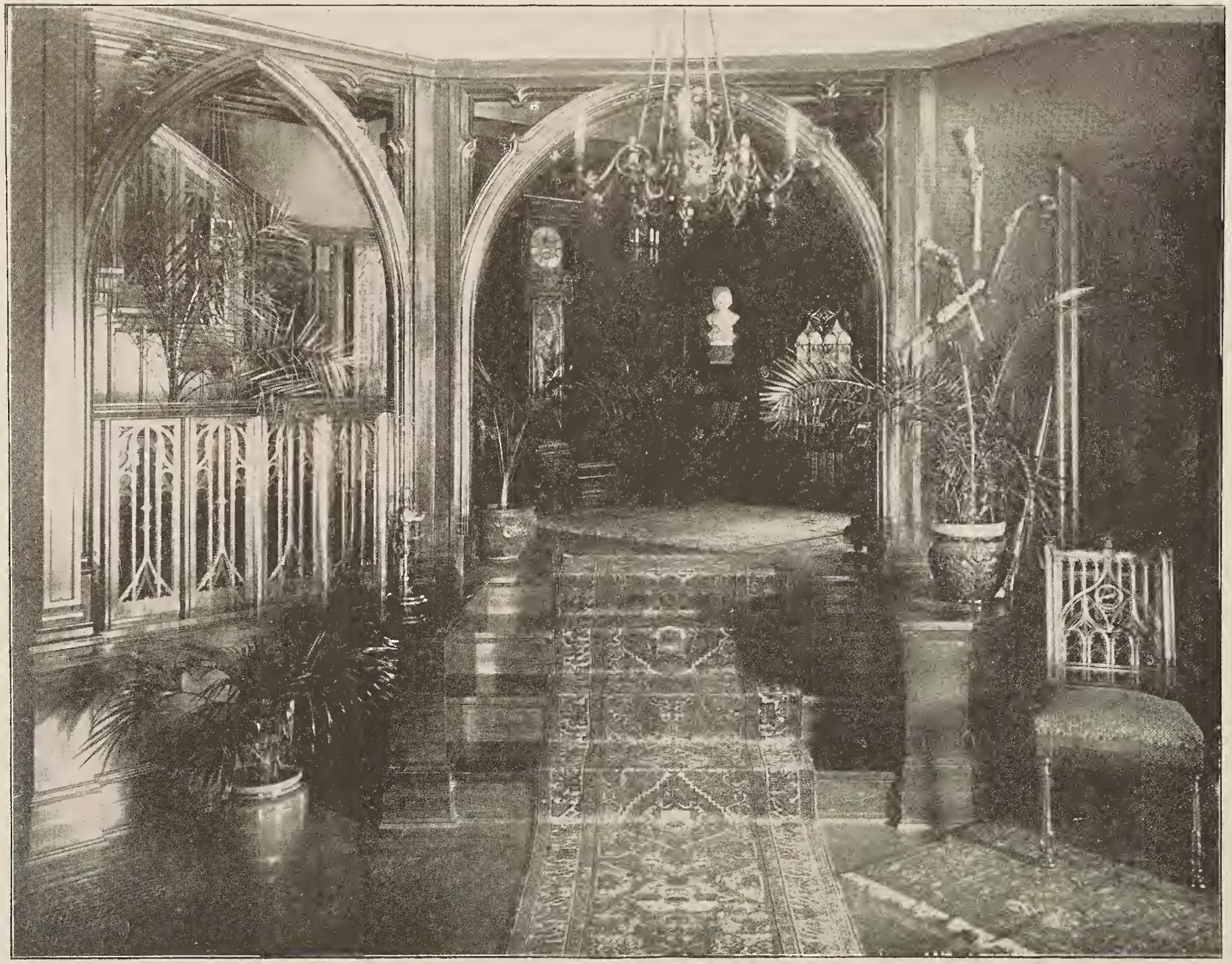
THE TRUDE COMMERCIAL BUILDING, CHICAGO.

JENNEY & MUNDIE, ARCHITECTS.

INLAND ARCHITECT PRESS.

RESIDENCE OF W. M. FREER, DETROIT, MICH.

MASON & RICE, ARCHITECTS.



VIEW IN HALL, RESIDENCE OF F. S. GARDNER, CHICAGO.

GEO. W. MAHER, ARCHITECT.

lowest, for the erection of the building, but the board awarded the work to another. It was held that he had no cause of action, even if the board acted "arbitrarily and capriciously and through favoritism," in awarding the contract. Anderson *vs.* Board, etc., of Public Schools, Supreme Court of Missouri, Div. No. 1, 27 S. W. Rep., 610.

POWER OF CONTRACTOR TO BIND COMPANY.

A contract for work in the construction of a railroad, under a direction of the road's division superintendent to order stone to be furnished to the railroad company, confers upon the contractor power to bind the company by a purchase of such stone. Union Pacific, D. & R. G. Company *vs.* McCarty, Court of Appeals of Colorado, 34 Pac. Rep. 767.

BUILDER IS ENTITLED TO PAYMENT THOUGH WORK IS NOT ACCORDING TO CONTRACT.

Where a builder alleged that he constructed a house for another, and that the latter accepted, he is entitled to payment according to the value of the work done, although he may not prove the contract as he claimed it to have been, as his right to a quantum meruit inquiry does not depend solely upon the contract, but upon the ground that he rendered service, in work and labor performed, the fruits of which were received by the owner of the building, and the quantity of the material and work and the value of same may be ascertained. Moffit *vs.* Glass, Supreme Court, North Carolina, 23 S. E. Reporter, 104.

DELAY IN PERFORMANCE OF BUILDING CONTRACT.

The fact that a builder of a house does not terminate the contract with a subcontractor for the failure of the latter to complete his work within the time specified, does not prevent the builder from recovering by way of counter-claim damages for the delay. A builder who has failed to complete in time work which was required to be done on his part before the work of a subcontractor could be commenced cannot complain that the subcontractor failed to complete his work within the time specified in the contract. Grannis & Hurd Lumber Company *vs.* Deeves, Supreme Court of New York, 25 N. Y. Supp., 375.

CONSTRUCTION OF CONTRACT AS TO PARTY WALLS.

Where one erected a wall partly on his lot and partly on an adjoining lot, under an agreement with the then owner, by which the wall was to be mutually used and enjoyed by the respective parties thereto, and their respective heirs, successors and assigns, for all the purposes of a party wall, one-half of the cost of the wall was to be paid by the adjoining owner when it should use the wall. The contract further provided that if the adjoining owner should at any time elect that it would not use the wall, then it should convey for a certain sum so much of its lot as the wall occupied. The wall was a party wall under the agreement, and its character could not be altered by a failure to make the election. Cutting *vs.* Stokes, Supreme Court of New York, 25 N. Y. Supp., 365.

CONSTRUCTION OF CONTRACT FOR PARTY WALL.

Where one being about to erect a building on his lot on the west side of an adjoining lot on which the owner had a three-story building, running back 104 feet, the rear seven feet of the lot being covered with a one-story shed built of wood on the side toward his lot, made a contract with him providing that the east wall of his building should be erected as a party wall, the cost to be borne by him, the adjoining owner to pay $3,000 whenever he should make use of the party wall, and for the support of any building which he might thereafter construct. As his building came to the dividing line of the lots, it was necessary to take down the west wall to make room for the party wall, and in doing this his building was built into and attached to the party wall. He was not liable for the $3,000 till he thereafter constructed a building on his lot, and he was not liable by reason of fastening his front wall into the party wall in making repairs, nor for covering over the wall on the inside of his bulding with plaster and wainscoting, and on this hanging gas fixtures and coat racks. Nor was the tearing down of the wooden part of the one-story shed on the rear seven feet of the lot, and extending the rear brick wall of the shed, and fastening it into the party wall with cement joints, no wall being put between the shed and the party wall, the construction of a building within the contract. Fox *vs.* Mission School, Supreme Court of Missouri, 25 S. W. Rep., 172.

MOSAICS.

THE annual convention of the Ohio State Chapter of the American Institute of Architects will be held at Dayton, on August 19. The meeting will convene at the Atlas Hotel, at 10 A.M.

THOMAS HARDY, the novelist, was an architect. He entered the office of Sir Arthur Bloomfield and while there used his spare moments in writing his first novel. This failed to attract the public, but he got a commission, and, just like any other draftsman, started in practice for himself. He still continued to write, and, when thirty-one years for age, he found fame suddenly thrust upon him through his great novel, "Far from the Madding Crowd." He now lives near Dorchester in a house designed by himself.

IN his "Notes from My Journal," C. Bryant Shaefer evolves the following conceit, which is unique. He says: "I consider music the fourth comprehension and the perfected Gothic style of architecture — its correspondent art, while ideal marriage is the means of securing the necessary inspiration. The New Future is founded upon this accomplishment, even if only apprehended in the smallest degree. The new prospect opened by the greater fifth comprehension is to be found in the art of operatic acting, a style of architecture based upon the Venetian and the here available inspiration that may now unite brother and sister. The original fact holds always: I am. 'I am that I am,' God told Moses. It is nothing to me what I am named. Stability is through the father personally. Continual truth is between every son and father, and every mother and daughter. There are enough for adoption in necessity. Immortality is proven backwards. 'You do greatly err,' St. Mark declared, 'He is not the God of the dead, but of the living.'"

OUR ILLUSTRATIONS.

Some Chicago Monuments.

Design for Chapel, University of Chicago. Henry Ives Cobb, architect.

The Trude Commercial Building, Chicago. Jenney & Mundie, architects.

Kansas City Star Building, Kansas City, Missouri. Van Brunt & Howe, architects.

Residence of F. S. Gardner, Chicago. George W. Maher, architect. Also, View in Hall of same.

Bird's-eye View of the Union Theological Seminary, Richmond, Virginia. Watts Hall, Dormitory Building, Spence Library of same. Charles H. Read, Jr., architect. The problem of designing not only all the buildiugs, but also of devising the general scheme of arrangements, laying off roads, path-locating, trees, etc., grading entire plat of eleven and a half acres and arrauging for both water and sewer service and systems, was left to the architect from the beginning, and when eventually carried out as contemplated will result in a complete and well-arranged institution. At present only eight of the buildings shown in bird's-eye will be erected, and will include, in addition to those illustrated in this number, fine residences for the professors — all differing in external treatments — and facing south on Westwood avenue.

Photogravure Plate: Residence of W. M. Freer, Detroit, Michigan. Mason & Rice, architects.

PHOTOGRAVURE PLATES.

Issued only with the Photogravure Edition.

Semi-detached Houses, Detroit, Michigan. John Scott & Co., architects.

Detail View, Marlborough Flats, Detroit, Michigan. W. S. Joy, architect.

Residence of Dr. Inglis, Detroit, Michigan. Stratton & Baldwin, architects.

Residence of G. W. Nettletou, Detroit, Michigan. G. W. Nettleton, architect.

Residence, Detroit, Michigan. Chapmau & Frazer, architects, Boston, Massachusetts.

Residence of Harry Walker, Detroit, Michigan. Jenney & Mundie, architects, Chicago.

View in Library, Residence of Architect Donaldson, Detroit, Michigan. Donaldson & Meier, architects.

BUILDING OUTLOOK.

OFFICE OF THE INLAND ARCHITECT,
CHICAGO, August 10, 1896.

A survey of the situation in midsummer brings out several interesting trade features, some of which are not gratifying, however. Speaking generally, only a moderate volume of business in building, manufacturing and in commercial circles is being transacted. Commercial, railway, manufacturing and other periodically available statistics show this to be the case. Prices, also, are either declining or are at a very low level, barely sufficient to warrant production. In all lines margins are low. What is more discouraging, new business is not urgent, new enterprises are not crowding in as fast as industrial and commercial health requires. Conservatism may be the polite word to express it, but we all know better. We are feverishly impatient. Capital is exasperatingly timid. Projected work remains pigeon-holed. Progressive men with credit and capital are obliged to wait on conditions they do not understand. Political agitations denote unusual unrest. The cloud that was like a man's hand is covering the sky. The American people will reach the right conclusion. It may take time, but their destination is assured. We know we are not doing enough business, that prices could be better, that enterprise could be intensified, and that prosperity could and should be more general. What the obstacles are is the question. Panaceas are offered on all sides, but none pass the calm judgment of the higher standard of intelligence to which all questions are referred as a court of last resort. The year, so far, has yielded fair returns. Builders have done fairly well. There have been no serious labor agitations. Cost of material has been low and uniform. Properties have sold or rented well. No serious losses have occurred. House, shop and factory construction has been liberal. Much work is still to be done. The remaining months of the year will probably witness improving activity, especially in the western and southern states. Cities are expanding, towns are growing and hamlets are springing up The impulse is strong. Good crops, fair but not high prices prevail. Commercial failures, while numerous, are within the anticipated and customary limits, and the production and exchange of shop, mill and farm wealth is progressing with reasonable pace. What we Americans want is business at high pressure; business for its excitement, for the game of the thing. That we cannot have for awhile yet. There is nothing in the immediate future to warrant fear. Russia is making industrial strides and is calling for our gold. The possibility and the apprehension of war is the secret of the drain of gold and of the world's financial unrest. There is a solid substratum

of common sense in the American people which will take care of them and lead them through all emergencies. That there are better conditions and grander possibilities ahead is clear. The industry of the people cannot be checked, except temporarily. Prices are now at bottom. Our industries are pretty well organized. Competition is under guard. No destructive influences threaten. Restriction is now the keynote. The interesting political campaign ahead of us will be fought to a safe conclusion, and meanwhile our shop work and our building work will progress without much distraction.

SYNOPSIS OF BUILDING NEWS.

Architects are invited to furnish for publication in this department monthly or occasional reports of their new work before the letting of contracts. Reports of buildings costing less than $5,000 are not published.

Chicago, Ill.—Architects Huehl & Schmid: For H. J. Peet, a four-story and basement store and apartment house, 80 by 51 feet in size; to be erected at the corner of Clark and Roscoe streets; it will have three fronts of pressed brick with buff Bedford stone trimmings and brick bays, hardwood interior finish, all the modern open plumbing, gas and electric fixtures, electric wiring, mantels and sideboards, tile, marble and mosaic work, steam heating, electric bells, speaking tubes, laundry fixtures, gas ranges and fireplaces, cement basement, etc. For John Wells, a three-story and basement flat building, 84 by 30 feet in size; to be erected at Clark street, near Fletcher street; it will be of pressed brick front with stone trimmings, have the modern sanitary improvements, gas and electric fixtures, electric wiring, hardwood finish, mantels and sideboards, electric bells, speaking tubes, laundries, steam heating, etc. For F. C. Flanders, a two-story frame residence, 24 by 50 feet in size; to have a stone basement, the modern open plumbing, quarter-sawed oak finish, mantels and sideboards, gas fixtures, furnace, etc. For C. E. Roth, a two-story, basement and attic frame residence, 24 by 50 feet in size; to have a stone basement, oak finish, mantels and sideboards, gas fixtures, modern plumbing, hot-water heating. For Mr. A. Portman, a two-story flat building, 22 by 50 feet in size; to be built at 1141 School street; to have the modern plumbing, furnaces, etc.

Architect Paul Gerhardt: For E. Pershe, a three-story and basement flat building, 25 by 60 feet in size; to be built at 130 Cleveland avenue; it will be of pressed brick and stone front, have oak and Georgia pine finish, mantels, sideboards, gas fixtures, furnaces, etc. For Mrs. Holt, a three-story and basement flat building, 28 by 65 feet in size; to be erected at 1440 North Halsted street; it will be of buff Bedford stone front, have quarter-sawed oak finish, mantels, sideboards, gas fixtures, electric wiring, hot-water supply, nickel-plated sanitary plumbing, bells, speaking tubes, furnaces, etc. For O. A. Arzbacher, a two-story, basement and attic residence, 35 by 50 feet in size; to be erected at Malden street near Leland avenue, Ravenswood; it will be of frame construction on a pressed brick basement, have interior finished in quarter-sawed oak, mantels and sideboards, have the best of open nickel-plated plumbing, gas and electric fixtures, cement basement, marble wainscoting and tile bathrooms, furnace, gas ranges and fireplaces. For Ludwig Rich, at Sheridan Park, a two-story, basement and attic frame residence, 35 by 50 feet in size; to cost $12,000; it will have a stone basement, hardwood interior finish, mantels and sideboards, gas and electric fixtures, laundry fixtures and driers, the best of open nickel-plated sanitary plumbing, electric bells and speaking tubes, furnace, gas ranges, etc. For A. Lindt, a three-story and basement flat building, 25 by 85 feet in size; to be erected at Dayton street; front and rear flats; it will be of buff Bedford stone front, have oak and Georgia pine finish, the modern open plumbing, gas fixtures, steam heating, etc. For M. Freese, a three-story and basement flat building, 35 by 80 feet in size; to be erected at 1240 Halsted street; it will be of buff Bedford stone front, have oak and Georgia pine finish, mantels, sideboards, gas fixtures, steam heating, etc.

Architect John T. Long: For E. Taylor, a fine Gothic residence, 54 by 55 feet in size; to be erected at Huntington; it will be of pressed brick with terra cotta trimmings and slate roof, have elegant interior finish in white mahogany, red brick, quarter-sawed oak; parlor to be finished in white enamel and gold; first and second stories all cabinet work; will put in all open nickel plated plumbing, gas and electric fixtures, specially designed mantels, sideboards and consoles, gas ranges and fireplaces, electric light, marble wainscoting, tile bathrooms, cement floor; basement, steam heating, laundry fixtures and driers, plate and beveled glass, etc.

Architect J. M. Van Osdell: For J. C. Spry, a four-story and basement apartment building. 160 by 28 feet in size; to be erected at the corner of Wabash avenue and Forty-third street; it will have two fronts of pressed brick with buff Bedford stone trimmings, hardwood interior finish, mantels and sideboards, gas and electric fixtures, the modern open plumbing, electric bells, speaking tubes steam heating, electric light, etc.

Architect C. M. Palmer: For S. Coleman, a store building, 75 by 100 feet in size; to be erected at the corner of Thirty-first street and Vernon avenue; to be of pressed brick and stone, have the modern plumbing, gas fixtures, etc. For Frederick Hall, a three-story store and flat building, 25 by 50 feet in size; to be erected at Twenty-second street; to be of buff Bedtord stone front, have hardwood finish, mantels and sideboards, gas and electric fixtures, all open plumbing, steam heating, etc. For D. Duffin, a four-story apartment building, 50 by 77 feet in size; to be erected at Forty-fifth street; it will be of buff Bedford stone front, have hardwood interior finish, mantels and sideboards, gas and electric fixtures, electric wiring, steam heating, all open plumbing, etc.

Architects Dwen & White: For M. Clark, a two-story, basement and attic frame residence, 35 by 40 feet in size; to be erected at Wilmette; it will have a stone basement, hardwood interior finish, mantels and sideboards, gas fixtures, the best of open plumbing, furnace, etc. Also planned a fine residence, 35 by 40 feet in size, to be erected at Wheaton; it will be of frame, with stone basement, have interior finished in quarter-sawed oak, mantels and sideboards, the best of plumbing, gas fixtures, hot-water heating, electric wiring, etc. For E. Kimball, a handsome three-story and basement residence, 40 by 46 feet in size; to be erected at Kenwood avenue near Forty-eighth street; it will be of pressed brick front, with buff Bedford stone trimmings. have hardwood interior finish, special mantels and sideboards, the best of nickel plated plumbing, steam heat, etc. For George Davis, addition to residence at Thirty-third street and Cottage Grove avenue; will put in billiard room, dining rooms, chambers, all modern open plumbing, gas fixtures, etc. Also making plans for remodeling building on Vincennes avenue; will put in new modern open sanitary improvements, gas and electric fixtures, steam heating, hardwood interior finish. mantels and sideboards, electric light, etc.

Architect S. M. Crowen: For Mrs. Josephine Leiback, a three-story and basement flat building, 25 by 85 feet in size; to be erected at Larrabee street; it will be of pressed brick front, with buff Bedford stone trimmings, have oak and Georgia pine interior finish, mantels and sideboards, gas fixtures, the modern sanitary improvements, gas fixtures, steam heating, laundry fixtures, etc.

Architect H. C. Hoffman: For S. W. Hull, two two-story and basement flat buildings, 22 by 50 feet each; to be erected at 6610 and 6614 Evans avenue; cut stone fronts, hardwood finish, mantels and sideboards, gas fixtures, steam heating, gas ranges and fireplaces, modern plumbing, etc.

Architects McMichaels & Morehouse: Have finished plans for the St. Nicholas Church, 80 by 140 feet in size; to be erected at One Hundred and Thirteenth Place and State street, and are now putting in the foundations; it will be constructed of Milwaukee pressed brick with terra cotta trimmings and slate roof; fixtures from the old church will be used for the present.

Architect L. G. Hallberg: Making drawings for a three-story and basement apartment house, 46 by 80 feet in size; to be erected at Pine Grove avenue; it will have a handsome front, buff Bedford stone, flat roof, the modern open plumbing, the interior to be finished in sycamore and Georgia pine, have mantels and sideboards, gas and electric fixtures, hot-water system, tile floors and marble wainscoting, electric light, steam heating, etc. For Peter Nelson, a three-story and basement flat building, 25 by 60 feet in size; to be erected at Melrose street near Halsted; to be of buff Bedford stone front, oak finish, mantels, sideboards, gas fixtures, modern plumbing, etc.

Architect Robert Rae: For David Ayers, a three-story and basement apartment house, 47 by 70 feet in size; to be erected at 734 West Forty-third street; it will be of buff pressed brick front, with Bedford stone trimmings, have hardwood interior finish, mantels and sideboards, gas and electric fixtures, laundry fixtures, gas ranges and fireplaces, steam heating, electric bells, speaking tubes, etc.

Architect B. S. Elmendorf: For W. B. Thorpe, a two-story and basement flat building, 25 by 60 feet in size; to be built at 1238 West Congress street; it will have a pressed brick and stone front, interior to be finished in oak and Georgia pine, the modern open plumbing, gas fixtures, furnaces, electric bells, speaking tubes, etc.

Architects Flanders & Zimmerman: For Mrs. Bruno Goll, a three-story and basement store and apartment building, 75 by 100 feet in size; to be erected at Twelfth street near Ashland avenue; it will be of pressed brick with terra cotta trimmings and terra cotta cornice; have hardwood interior finish, mantels and sideboards, gas and electric fixtures, gas ranges and fireplaces, the best of sanitary improvements, steam heating, electric light, etc.

Architect Louis T. Shipley: Making plans for First Cumberland Presbyterian Church, 60 by 124 feet in size; to be erected at Sixty-sixth place and Stuart avenue; it will be constructed of limestone, with slate roof, have interior of oak, pews to accommodate a congregation of 500.

Architect Frederick Foehringer: For William Hagen, a two-story residence, 18 by 65 feet in size; to be erected at 1740 York place; it will be of buff Bedford stone front, with copper bay and cornice, have hardwood finish, mantels, sideboards gas fixtures, the best of open nickel-plated plumbing, gas ranges and fireplaces, electric bells and speaking tubes, laundry fixtures, steam heating, etc.

Architect Henry Ives Cobb: For the city of Lancaster, Ohio, a two-story and basement City Hall, 160 by 66 feet in size; to be constructed of pressed brick with buff Bedford stone trimmings, slate roof, hardwood interior finish, gas and electric fixtures, the best of modern plumbing, steam heating, electric light, tile floors, marble wainscoting, mosaic work, etc. Also just let general contract to C. E. Clark for the twelve-story office building, 72 by 168 feet in size; to be erected at Indianapolis; it will be of pressed brick and stone, have hardwood finish, marble tile and mosaic work, electric light, steam heating, elevators, etc.

Architects Hessenmueller & Meldahl: For L. Bieker, a three-story and basement apartment house, 77 by 87 feet in size; to be erected at Oakley avenue and Taylor street; first story will be of stone and aboye of pressed brick and stone, have the modern plumbing, gas and electric fixtures, gas ranges and fireplaces, electric light, steam heating, etc.

Architects D. H. Burnham & Co.: For Illinois Trust and Savings Bank, a two-story and basement bank building, 168 by 178 feet in size; to be erected at the corner of La Salle and Jackson streets; it will be of granite, fireproof construction, have marble, mosaic and tile work, steam heating, electric light, etc.

Architect H. H. Richards: For C. Y. Boardman, a four-story store and flat building, 20 by 102 feet in size; to be erected at Clark street near Polk; to be of pressed brick and terra cotta front, have modern plumbing, electric wiring, steam heating, elevator, etc.

Architect J. Y. Fortin: For Moses Bremen, a three-story and basement store and flat building, to be erected at 119 Johnson street; it will be of Bedford stone front, have Georgia pine finish, mantels, sideboards, the modern plumbing, gas fixtures, furnaces, electric bells, speaking tubes, etc. For Rev. A. L. Bergeron, third story and roof to Notre Dame Convent, at Vernon Park place and Sibley street; to be of pressed brick and stone, slate and copper. etc. For L. P. Cardwell, a two-story and basement store and flat building, 51 by 65 feet in size; to be erected at the corner of Harrison and Gold streets; it will be of pressed brick front with buff Bedford stone trimmings, copper bays and cornice, gravel roof, quarter-sawed oak interior finish, mantels and sideboards, gas fixtures, steam heating, electric bells, speaking tubes, cement basement, laundry fixtures, etc.

Architect Frederick Ahlschlager: For S. A. Allison, a two-story and basement flat building, 25 by 60 feet in size; to be built at Washtenaw avenue near Humboldt boulevard; it will be of buff pressed brick front with Bedford stone trimmings, have oak finish, mantels, sideboards, gas fixtures, furnaces, gas ranges, etc.

Architect Dankmar Adler: Made plans for a four-story and basement dormitory and gymnasium, to be erected at Morgan Park for the University; it will be of pressed brick and stone, have hardwood interior finish, the modern plumbing, electric light, steam heating, etc. Same architect made plans for a seven-story warehouse, 92 by 103 feet in size; to be erected at Market street south of Van Buren street; it will be of pressed brick and stone front, have the necessary plumbing, steam heating, electric light, elevators, etc.

Architects Wilson & Marshall: For J. C. Hutchinson, a three-story and basement apartment house, 50 by 80 feet in size; to be erected at Sixty-second street and Oglesby avenue; it will have two fronts of buff Bedford stone with stone bays and cornices, flat roof, oak interior finish, the best of modern open plumbing, gas and electric fixtures, mantels, sideboards and consoles, laundry fixtures and driers, gas ranges and fireplaces, electric light, marble wainscoting, steam heating, tile floors, etc.

Architect J. Y. Fortin: Making plans for a three-story and basement store and flat building, 25 by 60 feet in size; to be built at South Peoria street; it will be of buff Bedford stone front, have oak and Georgia pine finish, mantels, sideboards, gas fixtures, electric bells, speaking tubes, furnaces, etc. For Isaac Bernstein, a three-story and basement store and flat building, 25 by 76 feet in size; to be erected at 350 West Fourteenth street; it will be of pressed brick and stone front, have hardwood finish, gas fixtures, mantels, furnaces, etc.

Architect Morris O. Johnson: For Dr. David, at Rogers Park, a two-story frame residence, 26 by 45 feet in size, and two houses, 24 by 40 feet in size; to have stone basements, gas fixtures, hardwood finish, mantels and sideboards, electric bells, speaking tubes, furnaces, etc.

Architect Joseph L. Llewellyn: Making plans for a college building, 47 by 60 feet in size; to be erected at Thirty-ninth street; it will be of pressed brick and stone trimmings, have hardwood finish, the best of open plumbing, gas and electric fixtures, cement floors in basement, marble wainscoting, tile floors and mosaic, steam heating, electric light, etc.

Cleveland, Ohio.—Architect W. Stillman Dutton has recently removed from the Society for Savings building to an office on the eighth floor of the New England building.

Architect C. F. Schweinfurth is fitting up offices on the twelfth floor of the New England building, and will soon move into them from his offices in the Blackstone building.

Architects Coburn, Barnum, Benes & Hubbell, New England building, are preparing plans for the remodeling of a residence for Prof. J. W. Langley, on Cornell street.

Architects Knox & Elliot, Society for Savings building, have let partial contracts for a large $50,000 store building for the Kirk-Christy Company.

Architects Granger & Meade, 731 Garfield building, report a country residence at Wickliffe, Ohio, for Mr. Hal Morris; frame, mantels, grates, hardwood, all modern improvements; cost $9,000. For Mr. Harry Vail, County Clerk, a frame and half timber and plaster residence, on Amesbury avenue; hardwood, slate roof, mantels, plumbing; cost $6,000.

Architect S. R. Badgley, 1082 The Arcade, reports a pressed brick and stone church for the Mott avenue Methodist Episcopal congregation, New York city; slate roof, copper gutters, usual church interior, steam and fan system heat and ventilation; cost $30,000; Mr. J. Osborn Ball, 52 Wall street, New York, is chairman of the building committee. To be built at Foochow, China, he reports plans for a Methodist Episcopal Church, 72 by 100 feet in size, to be built of sun-dried brick, with tile roof, no heating, church furniture; approximate cost $40,000. For Mr. Charles Babcock he has under process of construction a frame residence at the corner of Euclid avenue and Brookfield street; cost $15,000.

THE INLAND ARCHITECT AND NEWS RECORD

Vol. XXVIII. ADVERTISERS' TRADE SUPPLEMENT. No. 1

Valuable Publications Free.

Any architect can secure valuable books of reference without cost by sending for the catalogues of materials, etc., noticed from month to month in these columns. Large sums are spent on these catalogues, and they contain much practical information. Many are art productions. They may be obtained free on application to those issuing them. In writing please mention THE INLAND ARCHITECT, and oblige the journal and the dealer.

REQUESTS FOR CATALOGUES AND SAMPLES.

Those wishing catalogues and samples sent them by dealers in general may have their names inserted under this heading free of charge. The only recompense desired is that the dealers who send catalogues to these addresses give THE INLAND ARCHITECT due credit for business benefits that result.

EDWARD B. GUMAER, E. E. and Architect, Weldon Building, Jersey City, N. J.

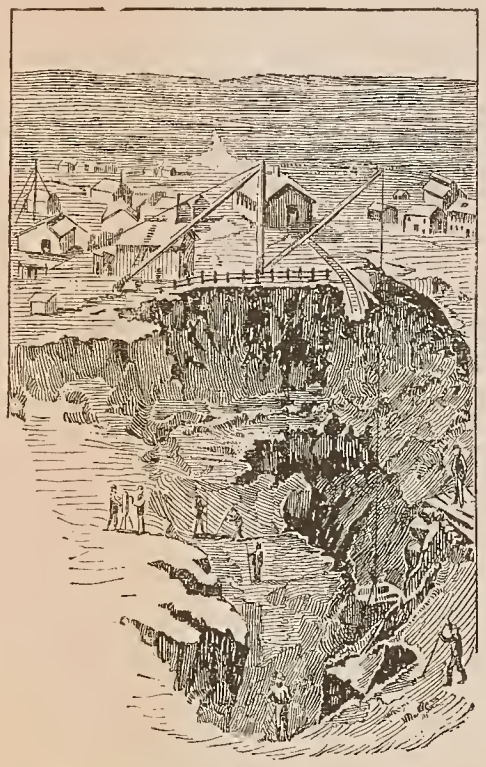
ED E. ORR, 721 Broadway, Quincy, Ill.

ASBESTOS AND ITS USES.

From an interesting article which appeared recently in the New York *Evening Post* we learn that asbestos, which was practically unknown twenty-five years ago, is a physical paradox, a mineralogical vegetable, both fibrous and crystalline, elastic, yet brittle, a floating stone, but as capable of being carded, spun and woven as flax, cotton or silk. It is indestructible by fire, acids or the disintegrating action of the elements, and is a nonconductor of heat and electricity. Its value for fireproofing and insulation is universal.

Asbestos has been found in all parts of the world, but the deposits differ greatly in quality. As a matter of fact, Canada contains the great asbestos region of the world, in the sense that, while its mines are practically unlimited in productive capacity, the product is of such a quality as to fully meet the most exacting requirements.

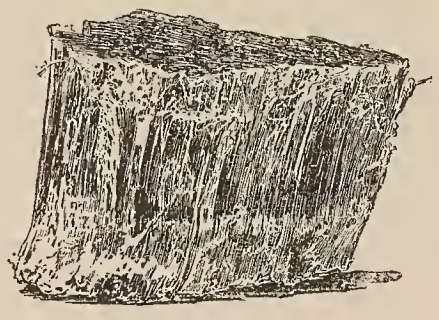
The uses of asbestos are constantly multiplying. One of the latest is for wall plaster.



Asbestos can be put on the raw brick, and before night the interior surface of a room thus plastered in the morning will be as smooth as glass and as hard as a rock. A similar use is for uninflammable decorations for walls and ceilings. Asbestos clothing, curtains, torpedoes, dynamite shells, balloons, roofing, pipe and boiler coverings, felting, packings, writing papers, electrical insulators, etc., are some of the wonderful fireproof realities into which this mineral has been woven.

At the factory the asbestos is first drawn into thread, and can then be woven into any desired form. There are the fireplace curtain blowers, filtering cloths for many purposes, especially useful for straining molten metals or corrosive acids; also asbestos electric heaters for fireplaces, car heaters, etc. In short, it is difficult to overestimate the extent and value of the applications to which this important natural product can be adapted.

The H. W. Johns Manufacturing Company, of New York, manufacture a complete line of asbestos materials for architectural



purposes. Their asbestos roofing is so well and favorably known as to need no detailed description in this connection, having been in practical use for thirty-five years under the severest tests to which roofing can be put, with perfect satisfaction. It is fireproof, light, durable, and, compared with other roofing materials, is of small cost. It can be easily applied by unskilled workmen. In short, the H. W. Johns asbestos roofing, like all asbestos goods of their manufacture, is thoroughly reliable.

ENAMELED BRICK.

FOR exterior use in city architecture it would be difficult to name any material which combines more good qualities than enameled bricks. Durability, beauty, cleanliness are three important requisites, all of which are combined in the glazed bricks of best quality now being offered in this market. The Tiffany Pressed Brick Company, of Chicago, are making a very superior quality of enameled bricks, in which the enamel forms a complete and inseparable union with the body of the brick. The severest tests have proven that the enamel will stand for inside or outside work in any climate, and that it is practically indestructible by frost or heat. On the score of beauty these bricks are unexcelled. They are made in white, ivory, cream, buff, brown, chocolate, blue, green, granite, etc., and thus are readily adapted to any of the most elaborate schemes of ornamentation the architect may devise. Their shapes are also advantageous for this purpose, being of the English pattern, 9 by 3 by 4½ inches; the American, 8¼ by 2¼ by 4 inches; the Roman, 12 by 1½ by 4. In regular stock the company keep stretchers, quoins, octagon, round end, splay and soaps. It can be readily understood that beautiful effects in fireplace, mantel and chimney work may be produced with the various shapes and shades of these enameled bricks, and for outside work they offer endless possibilities in artistic combinations, which, with the aid of the architects' working plan, can be set by any experienced mason.

The consideration of cleanliness, especially in a city, is by no means of least importance. The grime which comes from years of contact with city soot is so repulsive that it is never creditable to architect or owner. There is just as much necessity for a building that "will wash" nowadays as for any other object of everyday use. Enameled brickwork, inside or out, is readily cleansed with the hose, if necessary, and when washed presents as good an appearance as when new.

As to quality, it is sufficient to say that the Tiffany enameled bricks are equal, if not superior, to the best of English manufacture. But the most remarkable item is the low cost at which they can be produced. It is said that they can successfully compete in price with plain terra cotta. This important consideration should lead to their adoption for a great variety of uses.

TRADE NOTES.

W. GORDON MILLER CO., Pittsburg, Pennsylvania, write us that the demand for their "Improved Bell Traps" is assuming unusually large proportions, and that they have been compelled to leave off some important departments of their business to cope with the increasing demand, working night and day to fill orders. They claim that the advantages and improvements in the construction of this trap place it so far ahead that it is absolutely without a rival in the market today. They mention that chief among the many advantages of Miller's Improved Bell Trap is the fact that every trap has its cover secured by noncorrosive screws to body of trap, thus overcoming the heretofore inevitable difficulties of the loose cover, which being so easily lifted off is often carried away or laid aside or broken, so that the premises are left without any trap protection a good part of the time, and the stopping up of the sewer is not infrequently traceable to this condition of things, but the cover of their "improved trap" will not only remain firmly in place when stepping on it, etc., but unless there is absolutely occasion to remove it will always be found in its place and the trap kept in action. Another immense advantage of Miller's Improved Bell Trap is the *wash* of the trap. It is especially constructed with this object in view, and the water reaches the bottom of trap with such force and vigor that the fixture is as nearly as can be made a self-cleaner, so that little or no sediment can remain in the bottom, but is forced by the action of the water out through the trap into the drain or sewer, hence requiring little or no attention to keep in running order. Still another very important feature of the Improved Bell Trap is in the cover, which has four different center supports, by hook arrangements which grip the outlet pipe, so that the part of the old style trap which is always considered the weakest is in the Improved Trap made the strongest part, thus adding immensely to the life and service of the fixture. They also write that notwithstanding the value of the above improvements, and the machine work necessary in the manufacture of their traps, that they are actually placing them in the hands of the plumbing fraternity at the same price as the old style Bell Trap, which never had any improvement since antediluvian times. Made in all sizes, from 6 inches to 16 inches. Circulars and price lists will be sent to all parties requesting same and mentioning this paper.

ONE of the most wonderful industrial movements of this wonderful age is the planning and building of industrial towns. Not longer than twenty years ago it was generally taken for granted that the workingman's quarter must of necessity be more or less squalid, hideous and unhealthy, and that the common precautions for the sanitary well-being of families such as were provided in the case of the rich were entirely out of reach of the poorer classes. In this country, as in Europe, factory towns consisted of a few magnificent residences of the "proprietors," while the lower ground was occupied by the neglected and forlorn huts of the employes. Happily, all this is now undergoing a radical change. Great corporations, like the Apollo Iron & Steel

ADVERTISERS' TRADE SUPPLEMENT—(Continued).

Company, of Pittsburg, and others have taken up the idea and devoted unlimited capital and energy to constructing ideal residence towns for their employes. The Apollo Company is mentioned prominently in this connection because its town of Vandergrift, thirty-eight miles from Pittsburg, has just been completed. Ten years ago the company commenced manufacturing galvanized iron at Apollo. Their works and the town grew rapidly, but of necessity without symmetrical plan. At length they determined to build entirely anew. They selected their present site in the town Vandergrift, employed the very best landscape and structural architects, provided the best of modern improvements — sewers, drains, water, natural gas, electric lights, paved streets, curbed and paved sidewalks, public buildings, and, in fact, everything desirable—and then transported their entire plant and force from the neighboring town of Apollo to new scenes in one of the most complete and beautiful mill towns in the world. It is an enterprise strictly in keeping with the high character of the company. It is worth reading about and is fully described in their little volume entitled "Vandergrift Ready."

A superior wire fence is manufactured by the Ludlow-Saylor Wire Company, of St. Louis. Their recently patented adjustable foundation base is a valuable feature. It consists of a strong section of twisted wire frame for setting in the ground, with provision for a line post on top with a brace, both post and brace being adjustable. After adjustment is properly made the whole is held firmly in place by an iron lock bolt. This base insures strength and durability; the malleable iron cap can be adjusted in or out and lengthwise, securely locked and held firmly in position, and the fence and braces can be raised or lowered without disturbing the parts in the ground after once being set. The Ludlow-Saylor Company make a great variety of plain and ornamental wirework of exceptionally good quality.

Mr. George Frink Spencer is at present on a combined pleasure and business tour through Europe, and is expected to return shortly. Mr. Spencer is manager for I. P. Frink, 551 Pearl street, New York, whose goods have been installed in such places as the Metropolitan Art Gallery, Central Park, Carnegie Library and Art Gallery, Pittsburg, and many other well-known galleries, churches, etc. Frink's reflectors are highly recommended for use in connection with electric, gas and oil light.

RAILROAD NOTES.

Summer Excursion Tickets to the resorts of Wisconsin, Minnesota, Michigan, Colorado, California, Montana, Washington, Oregon and British Columbia, also to Alaska, Japan, China, and all Trans-Pacific points, are now on sale by the Chicago, Milwaukee & St. Paul Railway. Full and reliable information can be had by applying to Mr. C. N. Souther, Ticket Agent, 95 Adams Street, Chicago.

Low Excursion Rates to Mountain Lake Park, Deer Park and Oakland, Md., via the Baltimore & Ohio R. R.—On August 3 to 25, inclusive, the Baltimore & Ohio Railroad will sell excursion tickets to Mountain Lake Park, Deer Park and Oakland, Md., at a rate of one fare for the round trip, on account of the Mountain Chautauqua meeting. Tickets will be good for return until August 31, 1896.

For further information call on or address any B. & O. ticket agent, or L. S. Allen, Assistant General Passenger Agent, Chicago, Illinois.

Running on Time.—As illustrating the degree of efficiency to which the present management of the B. & O. R. R. has brought its motive power equipment and *esprit de corps* of the operating staff, we call attention to the fact that during the months of April, May and June the passenger trains and fast freight trains have almost invariably arrived at their respective destinations on schedule time. The very few exceptions to the general rule were due to causes inseparable from railway operation, and against which no forethought can wholly guard. It may be safely said that during the period named no road in America, comparable in magnitude to the B. & O., can surpass its record for punctuality in train movement.